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Successful bidder on 19 earth-fill dams

"Our Allis-Chalmers equipment has proved it can move more dirt at low cost . . . and let us be low bidder time after time. It gets a full share of credit for our success," says **Joe Duncan** of Arnett & Duncan, Corsicana, Texas.

TS-360 motor scrapers (15 yd struck; 20 yd heaped), like that shown at the left, are the big guns of the Arnett & Duncan fleet on earth-fill dam construction. Working with the TS-260's (11 yd struck; 14 yd heaped), they help make a high-production, low cost-per-yard team.

7,000 cu yd per day

. . . that's the kind of earth-moving production Arnett & Duncan get from their spread of Allis-Chalmers motor scrapers and crawler tractors.

Working on 1,000 to 1,200-ft hauls, the TS-360 and TS-260 motor scrapers are loading, hauling and dumping tough-to-handle waxy clay with 30 percent sand on a bed of shale. Even in this rough material, which normally slows down production, the Allis-Chalmers units have been cutting cycle time. The curved bowl bottom with offset cutting edge brings a real boost to loading cycles. Incoming dirt breaks up and rolls into the bowl, filling it with heaped loads . . . faster.

Lower cost per yard

Joe Duncan reports that his Allis-Chalmers equipment can dig, haul and place dirt for a lower-per-yard cost . . . move as much dirt as higher-rated capacity units.

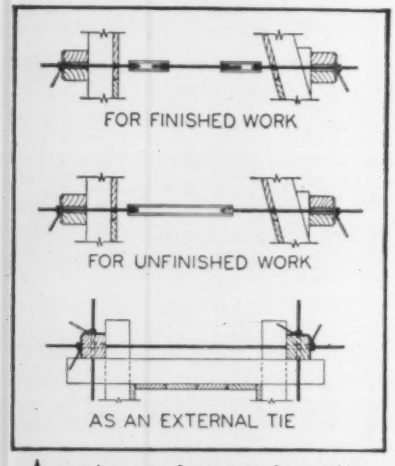
"Our operators like our Allis-Chalmers equipment, too, because of the operating ease, riding comfort. You get a lot more production when the crew likes the equipment," adds owner Duncan.

Find out for yourself how productive Allis-Chalmers construction machinery can help improve your profit picture on a wide range of land improvement work. Ask for all the facts—and a working demonstration of real dirt-moving efficiency. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

Look ahead...*move ahead*
...and stay ahead with ALLIS-CHALMERS

Easy Form Tying

Multi-purpose Richmond Continuous Threaded Lagstuds eliminate concrete form tying delays



A certain part of concrete form tying work is "special" – governed by conditions which develop as the job progresses. Richmond developed its Continuous Threaded Lagstuds to meet those special conditions and eliminate the need for costly, time consuming delays while "special" tys were built or "special" orders were filled.

Today any foreman, with a supply of Richmond's Continuous Threaded Lagstuds on hand, can have the needed sizes quickly cut to length right at the form.

Continuous Threaded Lagstuds are among the most versatile members of the Richmond Tyscru family. Used alone, or in combination with other Tyscru products, they fill numerous needs. The accompanying diagrams illustrate the adaptability of the Richmond Continuous Threaded Lagstud. They come in ½", ¾", 1" and 1¼" diameters, in 5-ft. and 10-ft. lengths, threaded to fit the contour of the helix coil of the Tyscru. Safe load ratings are equal to those of Tyscrus of the same diameter.

The current Richmond Handbook describes the Richmond Adjustable Tyscru System and the full line of more than 400 Richmond products for the concrete construction industry. For your copy and for help with any specific concreting problem—write to:

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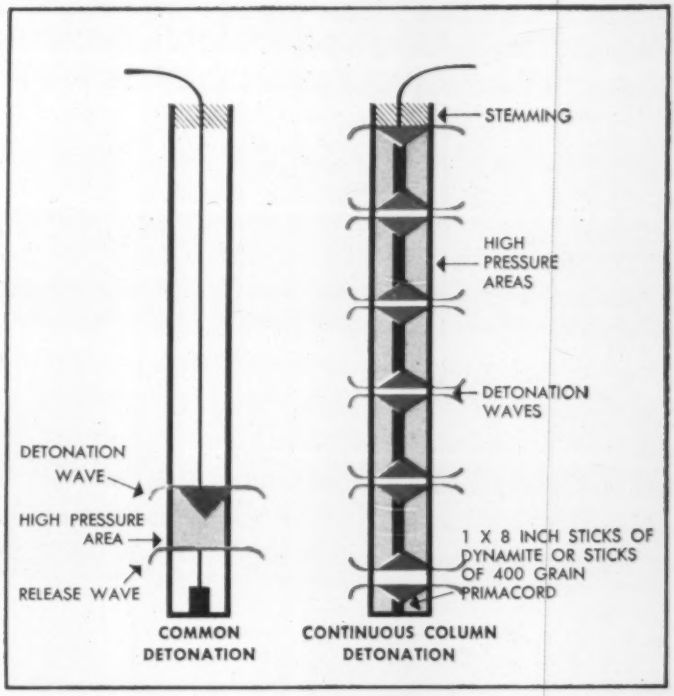
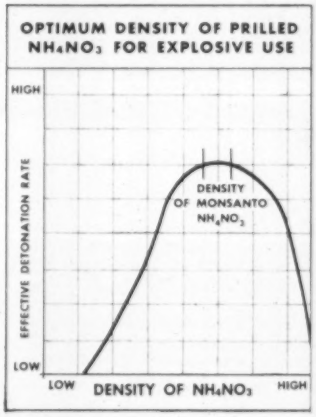
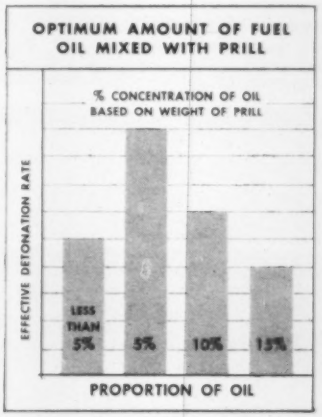
PRILLED AMMONIUM NITRATE IN CONTINUOUS COLUMN DETONATION GIVES BETTER BREAKAGE, SAVES DRILLING AND CRUSHING COSTS!

Continuous column detonation (right) gives better shatter because entire hole detonates approximately at speed of Primacord* (20,000 to 21,000 ft/sec.). Notice no release wave structure . . . entire hole works. Faster detonation cuts heat loss. Contained heat results in gas expansion—produces more work for less money. For the most favorable results, make sure hole is filled with NH_4NO_3 but don't risk destroying the best prill-pack by tamping. Pour oil in bag of Ammonium Nitrate. Let set for at least ½ hour before loading, or use mechanical mixer. Monsanto Ammonium Nitrate gives you optimum density of prilled NH_4NO_3 for explosive use *and* optimum prill size.



Ideal rock breakage, like this, reduces crushing costs. The Monsanto method of detonation, in conjunction with a new, top-quality prilled NH_4NO_3 that Monsanto research developed, will yield the equivalent of 60 % gelatin dynamite at ¼ the cost.





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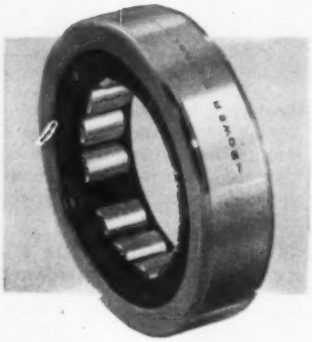
And this phrase describes the *equipment*, as well as the men who handle such back-breaking work! Bearings, for instance, have to operate efficiently under tremendous loads around the clock . . . day in, day out. Bower cylindrical roller bearings are engineered for jobs like this—incorporating such advanced design features as integral thrust shoulders and raceway, and improved internal construction. Painstaking quality control makes them last longer, require little or no maintenance. If you use bearings, either in original equipment or for replacement purposes, specify Bower!



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ROLLER BEARINGS

B.F.Goodrich

B.F.Goodrich Rock Logger tires can be retreaded 3 times, ready-mix company reports

GRAYSTONE of Olympia, Washington specializes in ready-mix concrete. Trucks travel on and off-the-road in stop-and-go service, rolling over such tire-killers as rocks and steel scraps at construction sites. Yet Graystone finds its tires often can be *retreaded 3 times* with practically new tire service from each retread. Why? Graystone uses B.F.Goodrich Rock Logger tires!

Graystone Dispatcher George Meyer says, "B.F.Goodrich Rock Logger tires give the kind of traction we need in rough weather." Husky Rock Logger cleats dig in to give you maximum pulling power in forward or reverse. "They give rugged dependability around rough construction work," he adds.

B.F.Goodrich Rock Logger tires are available with FLEX-RITE NYLON cord construction. FLEX-RITE NYLON withstands double the impact of ordinary cord materials, resists heat blowouts and flex breaks. Result: This B.F.Goodrich cord body outwears even the extra-thick Rock Logger tread, can often be retreaded again and again!

Your nearby B.F.Goodrich dealer is listed under Tires in the Yellow Pages of your phone book. See him today, and start enjoying the extra savings B.F.Goodrich tires give. *B.F.Goodrich Tire Co., A Division of The B.F.Goodrich Co., Akron 18, Ohio.*

Specify B.F.Goodrich Tubeless or tube-type tires when ordering new equipment

Smileage!

B.F.Goodrich *truck tires*

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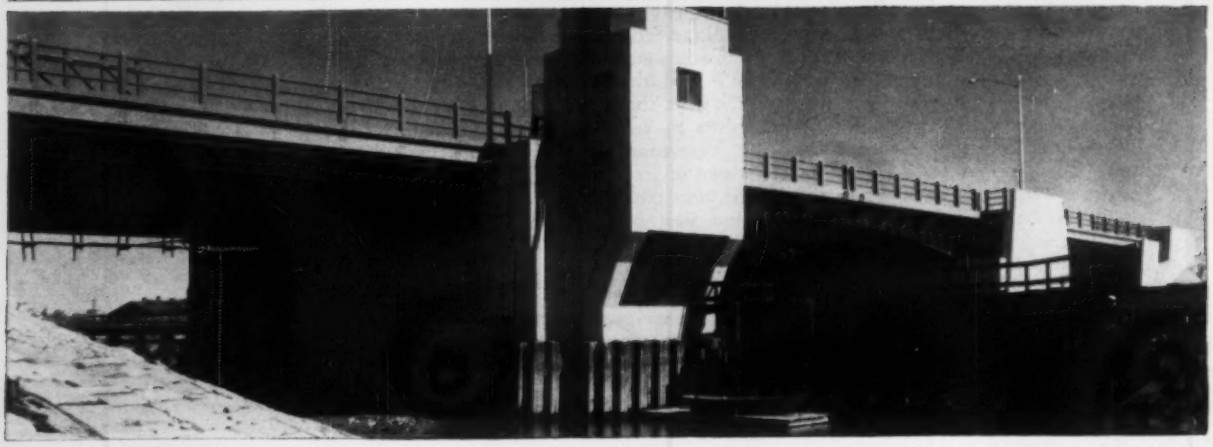
On these double-leaf bascule spans



AmBridge I-BEAM-LOK

saves 202 tons!

Conventional slab flooring on one leaf alone would weigh more than four I-BEAM-LOK floors

Nowhere is weight-saving of greater importance than in movable structures—for every pound of extra weight not only adds to the cost of the supporting structure, but also increases the cost of operating and maintaining the bridge.

The Malden River Bridge, Everett, Massachusetts, is a good example of this fact. Fabricated and erected by American Bridge, this 257′-long bridge carries two 36′ roadways, two 6′ sidewalks, and a 4′ center mall on two double-leaf bascule spans.

A conventional slab flooring on the 6,270 sq. ft. of roadway would have added 263 tons of dead weight to the bascule spans, or 66 tons per leaf. The weight problem was avoided by flooring the movable spans with USS AmBridge I-Beam-Lok—6,161 sq. ft. of 5″ open type on the over-water portion and 109 sq. ft. of 3″ concrete-filled I-Beam-Lok on the parts covering the lifting mechanism.

With 5″ open I-Beam-Lok weighing only 18.8 pounds per square foot, and 3″ concrete-filled I-Beam-Lok weighing only 47 pounds per square foot, total floor weight was 61 tons—less than ¼ the weight of a conventional floor. 202 tons of dead weight was eliminated.

For detailed information about the time- and weight-saving advantages of USS AmBridge I-Beam-Lok—the modern flooring for today's heavy traffic—contact the office nearest you, or write direct to Pittsburgh. Ask for a copy of our 32-page catalog.

USS, AmBridge and I-Beam-Lok are registered trademarks

The Malden River Bridge
Everett, Massachusetts

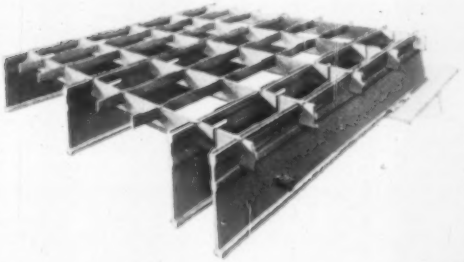
Owned by the Metropolitan District Commission, a subdivision of The Commonwealth of Massachusetts

Designs by Metropolitan District Commission and Charles A. Maguire & Associates

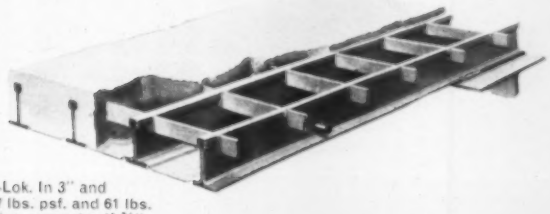
Supervising Engineers: Brask Engineering Co.

General Contractor: Munroe-Langstroth, Inc.

Fabricated and Erected by American Bridge Division of United States Steel



Open-type USS I-Beam-Lok, 5″ depth. Weighs 18.8 psf. Available in units 6′2″ wide and up to 48′ long. Can be applied directly to stringers.



Concrete-filled I-Beam-Lok. In 3″ and 4¼″ depths. Weighs 47 lbs. psf. and 61 lbs. psf. respectively including concrete. If ¾″ over-fill is used, add 9 lbs. psf. to above weights.

American Bridge Division of United States Steel

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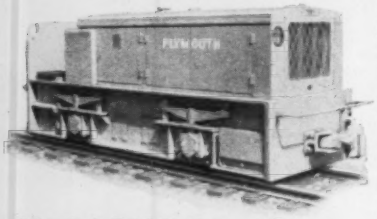
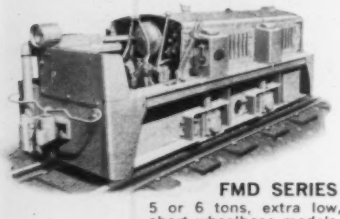
PLYMOUTH MINE-O-MOTIVES
cut haulage costs in tough tunnel and mine operations

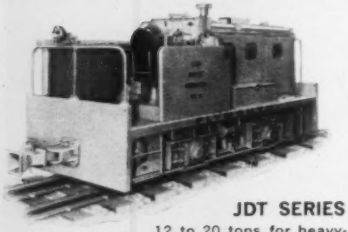


Model DMS 8 to 12 tons
...other compact, powerful models 3 to 10 tons

Do you have a tough construction, tunneling, or mining job? Plymouth Mine-O-Motives with Diesel-hydraulic power and exhaust conditioners take them all in stride, are presently working on some of the toughest jobs in the U.S.A. Available with chain or shaft drive, the extra-rugged construction of Plymouth Mine-O-Motives will save you money and help you beat deadlines. Send a brief outline of *your* hauling problem to Dept. A-4 today!



FMD SERIES
5 or 6 tons, extra low, short wheelbase models.



JDT SERIES
12 to 20 tons for heavy-duty hauling either surface or underground.

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Division of The Fate-Root-Heath Company
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Reader Comment

Beware the Drafting Job

Sir—John W. Titus brought up a new point in an old argument ("In Defense of Drafting," ENR May 15, p. 64), namely the character-building function of drafting. He may have a point there, but it would be better to argue in defense of Sunday school and boy scouting, also excellent builders of character, because we all know that character building is more successful at an early age.

Nevertheless, he was right in calling drafting "virtually the only medium by which an engineer can convey his conception of a project." (Let us add that some firms also use drawings to improve their public relations, others to boost their collective ego and still others to impress clients or even to justify higher fees.) The young engineering graduate, therefore, has to acquire a certain minimum skill in conveying his ideas with drawings, and also to pick up a considerable amount of useful information while on the drawing board.

For a person who has brains for better work, drafting is indeed a drudgery, but it can be tolerated if its purpose is to impart the above skill.

Many an able engineering graduate, however, gets stuck for life as a draftsman because he doesn't realize that he is being hired simply to produce final drawings.

My advice to the able man is this: Keep away from any office where your job will consist of drawing up somebody else's design; or you will turn into an excellent draftsman in a few years and forget everything you ever learned about design.

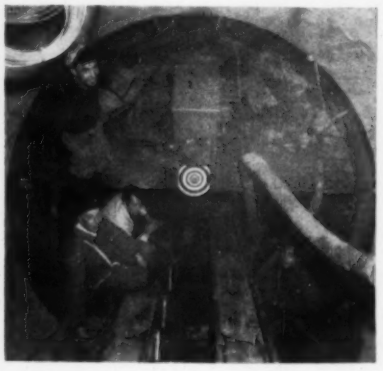
FREDERICK P. WIESINGER
Registered Structural Engineer
Assistant Professor of Civil Engineering
University of Illinois
Chicago, Ill.

Stirrups Needed?

Sir—P. P. Valerio requested information about design procedures for providing stirrups in reinforced concrete when the allowable shear stress is exceeded (ENR May 1, p. 14).

Our office practice is to limit the total shear at any point along a concrete beam to 10% of the total compression at the same location. To meet this requirement, stirrups are generally necessary at or near inflection points.

CHARLES MACKINTOSH
Mackintosh & Mackintosh
Consulting Engineers
Los Angeles, Calif.



Liner Wedges in France

SIR—The article "Liner Rings of Concrete Wedges" (ENR May 8, p. 62) prompts us to let you know that we built a tunnel by means of a similar process in 1955—a drain-trap under the Seine in Rouen, France. The horizontal branch of this drain-trap, located in thick marl, did not present any difficulty. But in order to join on the south bank, it was planned to build a shaft 8 ft 10 in. dia at an angle of 45 deg, through poor aquiferous soils.

The company offered to drive this tube under compressed air by means of a metallic frustum-cylinder-shaped shield, the elliptical cutter of which was always in a practically horizontal plane. Immediately at the rear of the shield, a first lining-ring, made of prefabricated concrete voussoirs, was built, and the eight jacks ensuring the heading on the shield were propped on it. A second lining-ring, made of reinforced concrete, cast on the spot, produced the necessary resistance and tightness.

The guiding of the shield was controlled by an optical method obtaining a deviation of less than 1 deg. A telescope interdependent with the shield was set in the center of a sight made of concentric black and white circles (see picture). A mirror in the upper part of the tube received the impress of a series of co-axial crosses and with the help of the telescope, a picture of

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Sitting pretty with low cost Kaiser Aluminum railings

Kaiser Aluminum bridge railings offer important money-saving advantages other materials can't match.

First, Kaiser Aluminum railings weigh less. A typical 10-foot extruded section of Kaiser Aluminum weighs 132 pounds *less* than its steel counterpart. Lightweight Kaiser Aluminum railings are easier to fabricate—go up fast—save on labor costs. They're easy to weld, too.

Second, Kaiser Aluminum railings resist corrosion, can't rust, never need painting, keep their handsome appearance. Maintenance costs are sharply reduced.

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- Bridge Railings and Accessories
- Extruded & Sheet Sign Components

To cut costs, speed up fabrication and handling, and virtually eliminate maintenance, think first of Kaiser Aluminum bridge railings and accessories.

Kaiser Aluminum does not fabricate or erect bridge railings, but supplies railing components. We invite the opportunity to bid on fabricator-erector requirements. We will also be glad to provide technical assistance on the design and specification of aluminum bridge railings and other highway products.

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919 N. Michigan Avenue, Chicago 11, Ill.

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- ☐ Please telephone me.
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MAKES OF TRACTORS, LOADERS AND DITCHERS

WHEEL and crawler tractors—front-end, overhead or conveyor-type loaders—ditchers and trenchers—the *fastest-working equipment* is powered by GM Diesel. Here are reasons why:

Modern 2-cycle design—*twice* as many power strokes per crankshaft revolution—more power per size and weight—smoother running—faster job cycles—more yards or tons moved per hour, per day, per machine in comparison to 4-cycle Diesels of equal displacement.

Unit fuel injection eliminates complex fuel systems and troublesome high-pressure lines—assures quicker response to throttle—faster getaway—easier maintenance.

Uniflow blower scavenging—surplus air for more complete combustion—less loss of power at high altitude. Positive crankcase pressure with a roots-type blower means there is no vacuum to suck in dirt—no need for special "dirt protection" devices other than air cleaners.

Along with these features of superior performance, you save money with "Jimmy" Diesels because of:

Lower-cost interchangeable parts—practically all wearing parts of Series 71 engines are interchangeable regardless of number of cylinders or engine usage. Parts cost up to 60% *less* than others—and, because the same parts fit many sizes of engines, a smaller stock protects your fleet.

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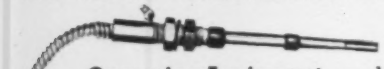

Operators of Construction or Quarrying Equipment can be certain of maintenance-free service from TRU-LAY PUSH-PULL CONTROLS because of their precision manufacture—rugged construction—lubrication for life of the inner, working member at the factory—complete sealing of the entire unit (a vitally important factor in tough, outdoor operations) against dust, dirt or moisture.

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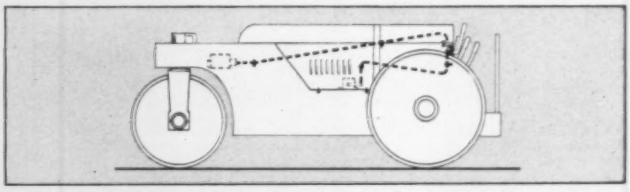
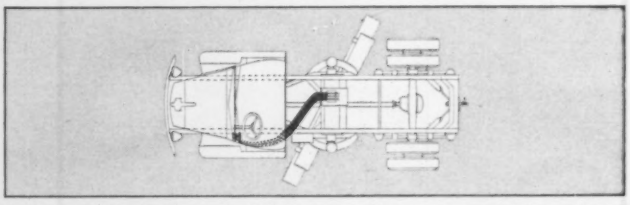
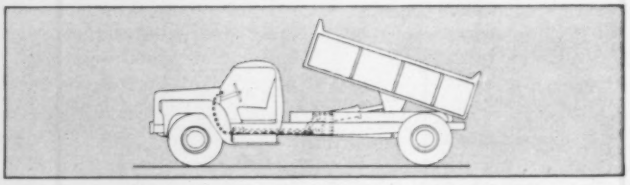


• Shown here is a tandem roller where two different PUSH-PULL cables are used to facilitate operation. One cable, 156" long, is capable of a 2" stroke to operate the hydraulic steering valve at the front of roller. The second, shorter cable operates tail shaft governor which keeps roller speed constant, upgrade or down.



• More room in the cab of this snow plow was one of the advantages of installing PUSH-PULL cables. This permitted the hydraulic valve to be located at a more convenient point in the chassis. "There are so many things you can do with these flexible cables compared to the old fixed installations," the manufacturer told us.



• Raising and lowering of the dump body on a famous line of hydraulic dump trucks is via TRU-LAY PUSH-PULL cables. With PUSH-PULLS this merely entails the pulling of a button on the dash. The installation did away with cut-up floor boards and levers in the truck cab. TRU-LAY PUSH-PULLS brought easier installation, more convenience and less maintenance.

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the lower sight was watched in the mirror. A given circle had to be tangent to the apexes of a certain cross.

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A. CHARBERT
Director General and President
Entreprise Jova-Chabert
Villeurbanne, Rhone, France

Let's Not Overstretch

SIR—I have read Robinson Newcomb's article (ENR June 19, p. 38) on the relationship between gross national product and highway transport. My lay impression is that production of goods had exceeded need, as well as the means of paying for them, and that overproduction rather than limitations of transport brought on the slowdown we've noticed.

But if an increase in gross national product is retarded by inadequate highway transportation facilities, where does one get the money to accelerate highway improvement? Many states are unable, even now, to match their federal aid allocations.

My personal belief is it is better to accommodate our highway improvement program to available funds and not overstretch our credit. Let's adapt our transportation needs to existing facilities—highways, railways, waterways and airways.

HUBERT E. SNYDER
Managing Director
Toncan Culvert Manufacturers Assoc.
Cleveland, Ohio

CALENDAR

Producers' Council, Inc., 37th annual meeting and chapter presidents' conference, Dupont Plaza Hotel, Miami, Fla., Sept. 17-19.

Michigan Aeronautics Conference, 6th Annual, Sponsored by Michigan Association of Airport Managers, Mather Inn, Ishpeming, Mich., Sept. 17-19.

Prestressed Concrete Institute, annual meeting and convention, Edgewater Beach Hotel, Chicago, Ill., Sept. 21-25.

American Public Works Association, public works congress and equipment show, Municipal Auditorium and Hotel Muehlebach, Kansas City, Mo., Sept. 28-Oct. 1.

World Power Conference, Canadian sectional meeting, Queen Elizabeth Hotel, Montreal, Sept. 7-11.

International Commission on Large Dams, Sixth International Congress, Statler Hotel, New York City, Sept. 15-19.

New England Water Works Association, annual meeting, Poland Springs House, Poland Springs, Me., Sept. 14-17.

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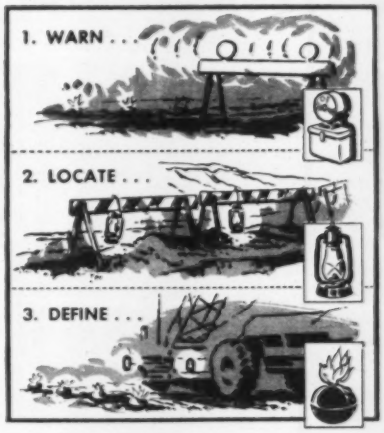
● For adequate safety, hazard warnings should (1) **WARN** of approaching danger by use of flashers and torches; (2) **LOCATE** the hazard by means of lanterns and (3) **DEFINE** and illuminate hazard with torches and lanterns.



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ENGINEERING NEWS-RECORD

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Back Issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semi-annual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

INGENIOUS, IF TRUE—A two-level reinforced concrete bridge with spans reportedly 650 ft long was constructed on the banks of the River Moskva, near Moscow, then moved onto permanent piers to span the river.

STRONG WORDS—Georgia's highway department has been called "a political dumping ground for patronage appointments" by a Fulton County (Atlanta) grand jury. The jury called for legal action to recover $24,000 in salaries paid "for services never rendered." In its presentment it declared the department "has carried persons in excess of three years without such persons reporting for work. . . ." Gov. Marvin Griffin attacked the grand jury and said the people cited in three specific cases would be kept on the payroll.

A WIDE SCREEN TOO?—Louisville aldermen are thinking about giving downtown Fourth Street a rainbow effect. The plan calls for blue pavement, yellow sidewalks, bright colored bus loading zones with plastic roofs, pastel flower boxes, litter boxes and drinking fountains—plus piped-in music.

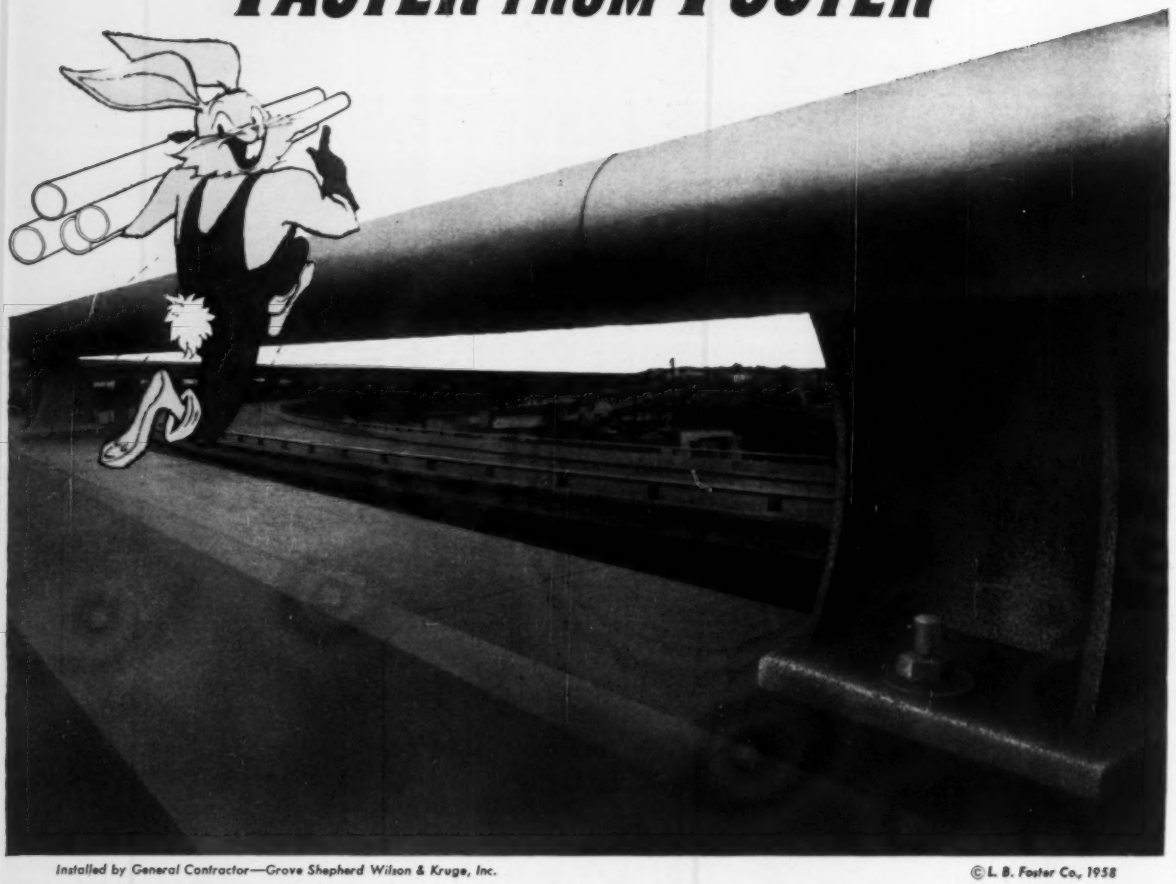
HIGHWAY HELIPORTS—Fast-moving businessmen can look forward to a new travel time-saver in Massachusetts. A string of state-owned helicopter landing fields, with parking lots, will be built along Route 128, which rings Boston. It's designed to serve executives who visit the crop of industries that line the new expressway. The ports, planned by the state's Public Works Department, will furnish short-haul service to Logan Airport and the other heliports.

ECONOMIC INTEGRATION—Two housing projects, one for medium-income families and the other for low income, will go up on adjacent sites in New York City's Bronx next year. Up to now, low-rent and medium-rent projects have been kept separate. The city housing authority is trying to give the neighborhood better economic balance.

BROWNLEE ON THE LINE—This week first power flowed from Idaho Power Company's Brownlee Dam in the Hells Canyon reach of the Snake River. It took just 33 months to build this 6 million cy yd rockfill 400 ft high. Brownlee's entire 360,000 kw will be on the line by December.

DETERGENTS THREATEN BUILDING—Discovery of synthetic detergents in individual well water supplies slowed homebuilding in sections of Long Island, N. Y., last week. The Suffolk County health department first banned construction in areas not served by public water systems. Later the ban on individual wells was lifted for builders who would increase distances between wells and cesspools.

"FASTER FROM FOSTER"



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WASHINGTON OBSERVER

- **Highway recommendation deferred**
- **Okay early right-of-way purchases**
- **Bridge clearance not yet set**

● **Federal officials are being given extra time to produce recommendations on some controversial highway issues.** These are questions that Congress wanted answered when it passed the 1956 highway act—the law that set up the 90-10 federal formula for the biggest public works project in history.

One report will recommend how much of the highway tax burden different classes of highway users and other beneficiaries should pay. Biggest single issue involved: Do trucks pay enough taxes to take care of the cost of building highways that will hold up under truck traffic? The problem is much more complicated than it sounds—involving, besides the truckers, the motorist, national defense considerations, and benefits to those who own property along the highway.

Another set of recommendations is needed to help Congress legislate limitations on the size and weight of trucks using the interstate system. It ties in with the cost allocation recommendations, although it's a separate project. When truck taxes were passed in 1956, Congress felt it was acting on very sketchy data—but it was the best available at the time.

Both these reports from BPR have been postponed until January, 1961. That gives officials two more years to come up with their answers. Reasons for the delay: Federal Highway Administrator Bertram Tallamy needs results of the AASHO road test that is beginning this summer in Illinois. It was obvious the test couldn't produce any useful data by next March, the original due date for the bureau's recommendations.

Commerce Department also will have to suggest formulas for reimbursing states for tollroads and other highways that meet interstate standards and are incorporated into the system. Congress passed a resolution requiring such suggestions, so they'll be on hand when Congressmen get ready to consider the question next year.

—

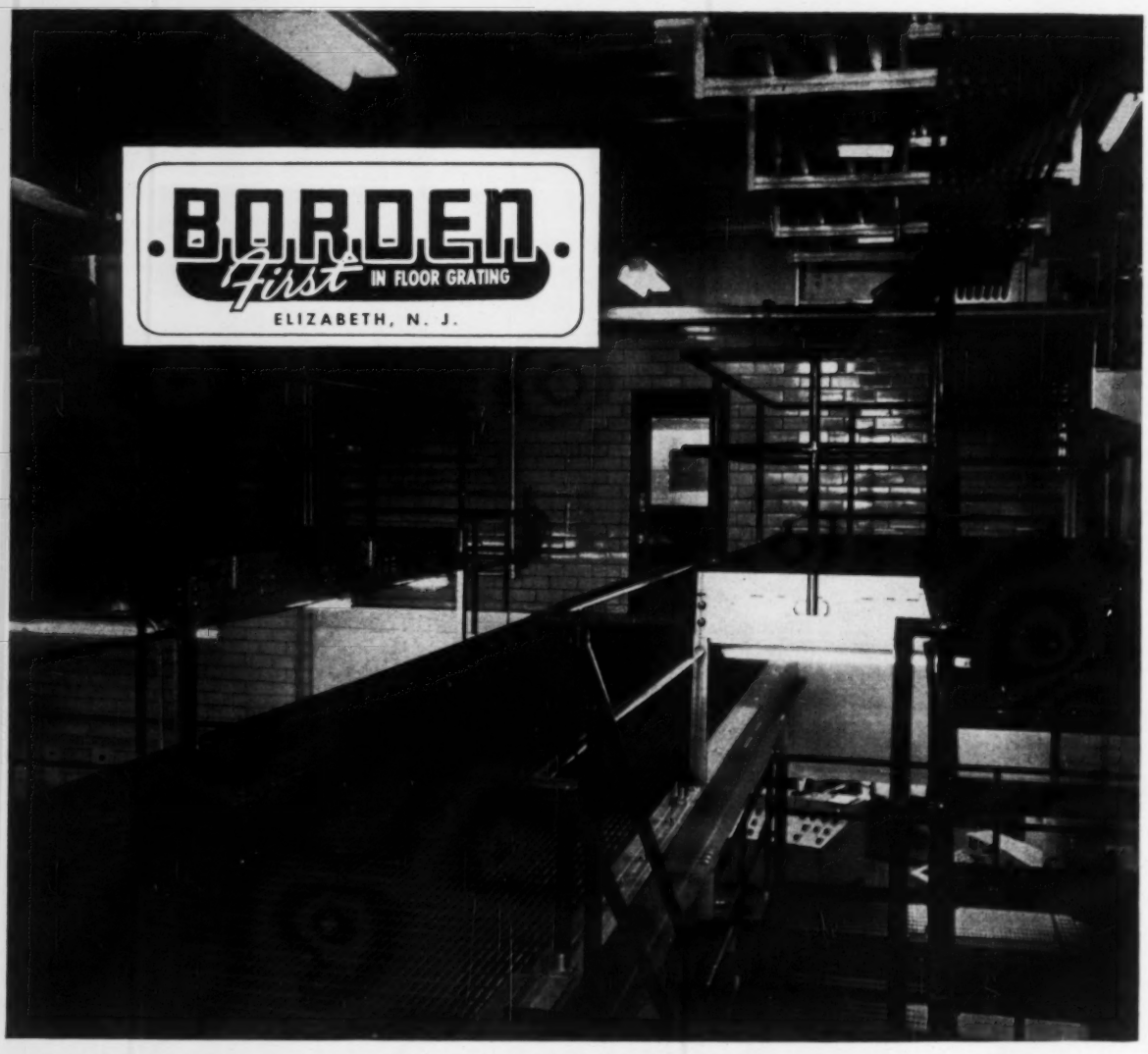
● **Highway officials will find life a little easier** because of a couple of things Congress did before going home:

States are allowed to buy right-of-way up to seven years before actual construction begins. Heretofore, they had to begin building within five years.

All highway legislation has been recodified into a single package: It's called "Title 23, U. S. Code, 'Highways'." It doesn't change any provisions of law; but it does rearrange in an orderly fashion all federal highway legislation since 1916 that is still effective.

—

● **Army Engineers aren't giving in on demands that fixed bridges over the Atlantic Intracoastal Waterway be permitted with 55 ft clearance.** They're still sticking to an 80 ft requirement, although allowing 55 ft clearances where state highway departments are to build movable bridges. The Army will spend another year completing a survey of inland waterway traffic to see how it would be affected before making its final decision on clearances.



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Congress Fills Construction's Till

Here's What Congress Did This Year:

Highways: Highway Act of 1958 authorizes about $2 billion more of federal aid and suspends pay-as-you-go requirement for fiscal 1959-60. Also adopts 1958 cost estimates apportioning federal interstate funds for fiscal 1960-61; calls for new estimates January, 1960.

Housing: Emergency bill puts $1.5 billion of federal money into home financing. However, over-all housing measure containing funds and authorizations for urban renewal, college buildings and some liberalizing measures for FHA financing is dead this year.

Army Engineers: Civil functions of the Corps get record appropriation of $806 million, including starting funds for 53 new projects.

Reclamation: $255 million in new money for the bureau.

Airports: Five years of federal matching grants at $100 million a year for the $1 billion job of jet-age preparation.

Schools: New construction funds of $60 million will continue building aid in areas hit by influx of defense establishment personnel.

Hospitals: Grant program extended for five years and $150 million appropriated for hospitals, plus $35 million for other facilities.

Public Buildings: Appropriates $196 million to build projects on approved list of defunct lease-purchase program.

Public Works Plans: Allows $50,000 a year to gather figures each year on state and local planning backlog.

Atomic Energy: Provides $45 million to start two reactor projects.

Saline Water: Authorizes $10 million for construction of five large experimental plants.

Military Construction: Military gets $1.9 billion for fiscal 1959.

Labor Legislation: Labor reform failed, but a law requiring public reports on welfare and pension funds was approved.

Depressed Areas: Establishes revolving loan fund of $100 million and $75 million in grants for construction of facilities that will produce permanent increase in local employment. President may veto.

Here's What Congress Didn't Do:

Community Facilities: Turned down a $1 billion loan fund.

TVA Bond Financing: Left TVA to finance construction from revenue only.

Bid-shopping: Rejected proposal to restrict general contractors' switching subcontractors after a federal award has been won.

Water Pollution: Nothing done.

Congress took good care of construction during the session just ended. It voted some of the biggest sums on record for highways, housing, airports and federal public works. But it bowed to Administration opposition by rejecting other proposals to increase the flow of federal funds for community facilities, college buildings and urban redevelopment projects (see table).

The legislators had two objectives: First, prevent any decline in over-all construction activity that might contribute to the recession. Second, assure a volume buildup for the immediate future that would place a construction prop under business confidence. Also, Congressmen saw the recession as a golden opportunity to get projects approved for their home states and districts after long, lean years of postponement and denial.

President Eisenhower, on the other hand, took a different position on public works and construction programs. He was ready to speed the release and use of money that Congress had voted in the past for federally aided work. But the President and his advisers frowned on legislation that threatened to increase the government's construction spending in this fiscal year and the years ahead.

New construction projects take too long to get started, the Administration argued, to have any concrete effect in slowing a recession. Even worse in White House eyes was the added burden that increased construction expenditures would place on future federal budgets. With the Sputnik-inspired expansion of defense spending looming large, the Administration took a firm stand against all avoidable increases for other branches of government. Here's a rundown on what was done and why some things failed to pass.

• **Housing**—Emergency aids for housing were given top priority on the anti-recession schedule by the Democratic leadership in Congress. Early this year, the Senate and House passed a special measure that has sharply revived construction activity of private home-builders since April 1.

Left for later action were all the regular, recurrent provisions, normally taken up each year, for programs of prime interest to general contractors. Among the notable omissions were slum clearance and urban redevelop-

ment, public housing, and college facilities.

Fate of these programs hung in the balance right up to the end of the session. In the closing hours housing leaders of both parties tried to tack on a bare-minimum compromise measure to a sure-fire bill. But the move failed.

Failure to pass the bill means about a hundred communities won't have to hurry completion of their applications for slum clearance projects. And many others that had filed application will have to wait another year before their requests can be acted upon.

If the housing bill had been enacted, the Urban Renewal Administration would have had an extra $400 million to parcel out to municipalities this year in grant commitments. Now it has only $50 million in the till and another possible $100 million that President Eisenhower can release at his discretion.

This temporary setback means a slowdown in construction of redevelopment projects for future years. But it does not mean a cutback during the next 12 months in bid calls and contract awards for projects nearing the construction stage. These projects already have federal grant commitments that enable local authorities to assemble, clear and prepare a project site for sale or lease to redevelopers.

Congress allowed the Defense Department to go ahead with original plans to sign contracts by next June 30 for some 47,000 units of privately financed Capehart housing. This calls for about $800 million worth of construction. It is split up into projects ranging from 50 units to a 1,000 or more units.

• **Highways**—Congress backed its favorite public works program to the hilt and voted substantial increases in federal funds for highways. In all, authority was provided for allocating to the states more than $2 billion of additional road money.

Congress also brushed aside the Byrd amendment—the pay-as-you-go provision in the 1956 Highway Act—for two fiscal years, 1959-60. This action could be the death knell of the highway trust fund as a ceiling on federal aid, but final decision for future years was deferred until the next Congress.

Federal-aid outlays are scheduled to rise from $1.8 billion this year to $3.4 billion in 1962.

• **Military construction**—After drastic cuts in the House, Congress finally compromised on a $1.35 billion money bill. Earlier, Congress approved a $520 million supplemental 1958 appropriations bill for the Air Force. With this and the latest measure, the military has more than $1.9 billion in new construction money this year.

LeTourneau's Back—And How!

R. G. LeTourneau will come back into manufacture of earthmoving equipment with a bang.

He has a 100 cu yd scraper under wraps for a big unveiling at next month's American Mining Congress in San Francisco.

One hundred cubic yards is a big jump from the 35 cu yd scrapers, biggest in use today. Whereas scrapers in use tend to be in the 15 to 21 cu yd range, R. G. LeTourneau, Inc., says it will work in the 50 and 100 cu yd range—all self-propelled.

This is the first earthmoving equipment the firm has made since selling out its previous line in April, 1953.

The big unveiling will come during the September 22-25 mining show since such big earthmovers could find early use in strip mining. Their application to earth dams and highways is also obvious. A LeTourneau spokesman says the big scrapers are expected to play a significant role in the highway program.

• **Electric wheel**—Other than size, there's another major difference between the new scraper and its conventional counterparts: Each wheel on the new machine will be powered individually by an electric motor geared directly to its inner rim. The main power source is a 600 hp diesel electric generator mounted at the front end.

In addition to exhibiting the new machine, LeTourneau will present films showing how the "electric wheel" system already has proved itself on machines other than earthmovers.

• **Some legal problems**—While the construction industry awaits the new earthmoving entries, R. G. LeTourneau and LeTourneau-Westinghouse Co. of Peoria, Ill., are engaged in legal action.

The Peoria firm has charged that Mr. LeTourneau and his company breached the contract whereby he sold his earthmoving equipment business to Westinghouse Air Brake Co. This firm later established the wholly owned subsidiary, LeTourneau-Westinghouse. Mr. LeTourneau, and the company he heads, deny the charges. The suit was filed in federal court at Tyler, Tex. (ENR July 10, p. 116).

Mock-Up of Skyscraper Cuts Costs

Excavation has begun for a 42 story skyscraper in New York City. The $58 million structure will be the new home of the Equitable Life Assurance Society.

Already under construction on the westerly side of the building plot is a full-scale experimental building, two stories high and 40 x 50 ft in area, which will be used for tests and studies of building materials and furnishings. The estimated cost of the mockup is 0.2% of the skyscraper's cost. It is expected to produce substantial construction savings for the prototype.

The mid-Manhattan skyscraper will be clad in a curtain wall of metal and glass. The building will face a tree-lined plaza; glass panels will be recessed 15 ft behind the metal columns at street level. Framing will be structural steel. Other building features include a glassed-in lobby floor, acoustical ceilings with flush fluorescent lights, zone controlled air conditioning throughout, movable partitions, and two moving stairways running up and down from the lobby. Thirty-four elevators will be able to move 2,000 people in five minutes.

The experimental building's exterior will include sample surfaces of aluminum, stainless steel and glass. Inside will be samples of wall surfaces, ceilings, floor coverings, lighting, windows, office equipment, and heating and air-conditioning systems. The structure also will serve as a construction office.

Turner Construction Co. is general contractor for the project; Skidmore, Owings & Merrill is the architect; Weiskopf & Pickworth, the structural engineer; and Meyer, Strong & Jones, the mechanical engineer. All are from New York City. The building is expected to be completed in 1960.

Photogrammetry Saves, State Increases Its Use

A big jump in aerial photogrammetric services for all phases of highway construction is planned by the Michigan State Highway Department. The new crash program will call for expenditures of over $400,000. "Last year the department spent about $75,000 on aerial photogrammetry, mostly on route location studies," says Commissioner John C. Mackie.

To date, photogrammetry is saving the department more than $1 million over former conventional methods. Preliminary surveys by traditional methods have been practically eliminated. Where they once cost approximately $1,000 a mile, according to Commissioner Mackie, photogrammetry reduces average cost to about $40 a mile and time from weeks to hours.

County Numbers Its Roads To End Name Confusion

The first of 3,000 route-number signs are being erected to end location confusion on 415 miles of Nassau County (New York) roads. The route numbering was prompted by the Long Island communities' failure to agree on uniform names for connecting roads. One road passing through a number of communities would have different names, since villages assigned the name they desired as the road ran between their boundaries.

There are about 200 numbered routes to be designated in the new program. Route 1, for example, will run from Point Lookout on the south shore of the island to Centre Island on the north shore. The markers are 18x16 in. reflectorized metal signs on 6 ft poles.

The Department of Public Works expects to mark the major roads in one year; the others two years later.

$100 Million Bridge Plan May Get Even Bigger

The proposed Puget Sound Bridge program, already estimated to cost more than $100 million, will be expanded to include two additional bridges if a $7,000 study just authorized by the Washington State Toll Bridge Authority proves that the new projects would be feasible.

The program, in its present form, includes a floating bridge from Seattle to Vashon Island, suspension bridges connecting Vashon and Bainbridge Islands with the Kitsap Mainland across from Seattle, and a fourth bridge across Sinclair Inlet to Bremerton, largest city on the Kitsap Peninsula. The new bridges would extend from Bainbridge Island to the Manette area. They would provide a more direct route from the island to Bremerton, and across the bay from Keyport to Lemolo, providing a more direct route across the northern part of the peninsula.

The study also will investigate the feasibility of financing the existing Washington Ave. Bridge from Bremerton to Manette and the new Warren Ave. Bridge in Manette, now under construction, as part of the cross-Sound package.

A survey conducted by Porter, Urquhart, McCreary & O'Brien of Newark, N. J., found the Puget Sound Bridge system to be feasible if subsidy revenue bonds or collateral revenue bonds are used for financing. The state legislature will be asked to approve issuance of such bonds early next year, which would lead to a call for construction bids in 1961.

The new study also will be conducted by Porter, Urquhart, McCreary & O'Brien.

Salt Lake Fill Oozes Apart

A 2,200 ft length of the fill being placed to carry Southern Pacific rails across Great Salt Lake in Utah slid apart August 20 and all but disappeared below the surface.

The $49 million earthfill is among the largest of its kind (ENR June 6, 1957, p. 34). Altogether, the 13 miles of material will total 31.5 million cu yd.

Last week's slide was not the first to plague Morrison-Knudsen, the fill-builders, but none of four earlier failures was so extensive. All earlier slides occurred within a few days after the affected material was placed.

This time lapse is considered of significance by engineers on the work, for the underlying clay is of such nature that it compacts and gains strength under load. The longer the load is on, the stronger the supporting clay is.

It was only six days between placing and sliding of the length of fill above.

Design of the Salt Lake fill was based on thorough soils investigations. About half of the total length will have a salt layer under it, which is hard and strong. But at the particular section that failed, the 10 ft thickness of salt was found to be softer than normal.

Fill material chosen was as light as possible—but it was still heavy. Deflection of as much as a foot was noted prior to the fills failure at this point.

The slid section will be rebuilt, probably using a wider base. About 2 million cu yd of material has shifted and will have to be built upon. Bottom-dump barges on the job are expected to be able to complete the repairs so that the present July 1, 1959, completion target can still be hit.

New Estimates of Highway Construction

(in millions)

	1958	1959	1960	1961	1962
Total	$6,202	$7,051	$7,341	$7,738	$8,092
All Federal	153	168	170	163	163
Federal Aid	2,761	3,974	4,069	4,382	4,569
State	1,693	1,583	1,798	1,832	1,965
Local	1,095	1,150	1,203	1,261	1,320
Toll Facilities	500	176	101	100	75

Outlook: 14% Jump Next Year

Expenditures for highways this year will reach $6.2 billion, an increase of $500 million, 10% above the 1957 total of $5.7 billion. And they will jump another 14% in 1959 (see chart).

The Bureau of Public Roads forecasts an annual expenditure of $7.1 billion in 1959, $7.3 billion in 1960, $7.7 billion in 1961, and $8.1 billion in 1962.

Capital expenditures cover construction (including on-the-job engineering supervision), preliminary engineering, right-of-way acquisition costs, and maintenance of existing roads.

Federal-aid funds are providing an increasing share of the total: 29% in 1958 and 40% in 1959, followed by a gradual increase to 42%. The rate of increase is being boosted by the additional $600 million provided in the Federal Highway Act of 1958 for expenditure during 1958 and 1959, and through the temporary suspension of the pay-as-you-go clause in the 1956 highway act. This would have required a curtailment of expenditures early in 1960 to avoid creating a deficit in the highway trust fund.

Engineering and right-of-way acquisition costs represent roughly one-fifth of total capital expenditures for highways. Construction expenditures are expected to account for 83% of the total in 1958. It is anticipated that they will drop to 80% in 1960, and then rise to 85% by 1962.

Paradox: Few Bids, Low Bids

Bids on highway work have been dropping, both in number per job and in dollars, measured against engineers' estimates.

It would appear that competition is easing, yet highway bids have been dropping.

The lower number of bidders per job evidenced in several states could be due to the fact that more and more jobs are being advertised in today's stepped-up highway effort. And it could also be that contractors are shying away from highway work because they see it going at prices they consider to be too low.

Whatever the reason for the lessened number of bidders, those who are competing are working with sharpened pencils.

California's Division of Highways reported a drop in prices in the second quarter, despite the fact the average number of bidders dropped below five per contract awarded in May and June.

In Nevada, the state highway bid price index dropped 8% in the second quarter, even as the average number of bidders dropped 25%.

New York State this month had bids come in 20% under estimates on 23 projects totaling $36.2 million. This was the widest spread in three years. And while this price drop was recorded, the average number of bidders per job shrank from seven in the first quarter to six in the second—and to 4.8 this month.

"Low bids generally result when there is a high average number of bids received," one perplexed highway official has commented. Just why bids kept coming in so low, and how long the condition might exist, remained problematical.

New Twist: Cost Is Split In Port Pollution Study

Baltimore has joined the growing list of port cities whose harbors are being studied for broad-gage pollution effects.

There's a different twist to one: 17 private companies with plants on the harbor have contributed $33,000 toward the $100,000 cost. Maryland and the federal government will pay $30,000 and $37,000 respectively. Johns Hopkins' Chesapeake Bay Institute will make the three year survey.

It Did Even Better

Highway department saves 8% of operating budget

Arizona's highway department was told to live within its budget after the legislature had refused to pass a gas tax increase. The department invoked a belt-tightening campaign and did even better: It saved $1.1 million on its administration budget for fiscal 1957-1958.

The money saved went to match federal funds. This enabled the department to apply almost $6 million to additional road construction.

The department's first step was reorganization of its engineering division. This resulted in better use of manpower and elimination of duplicate effort. Then there was an extensive application of labor-saving devices and electronic equipment. A forceful efficiency campaign was followed and a rigid accounting system was established.

Engineering output increased 50% over the previous year and contracts jumped from $22 million two years ago to $34 million last year.

The savings were made from an administrative budget fixed by the legislature at $14.1 million.

Famine Amid Plenty

Kentucky road work soars, but repairs fall behind

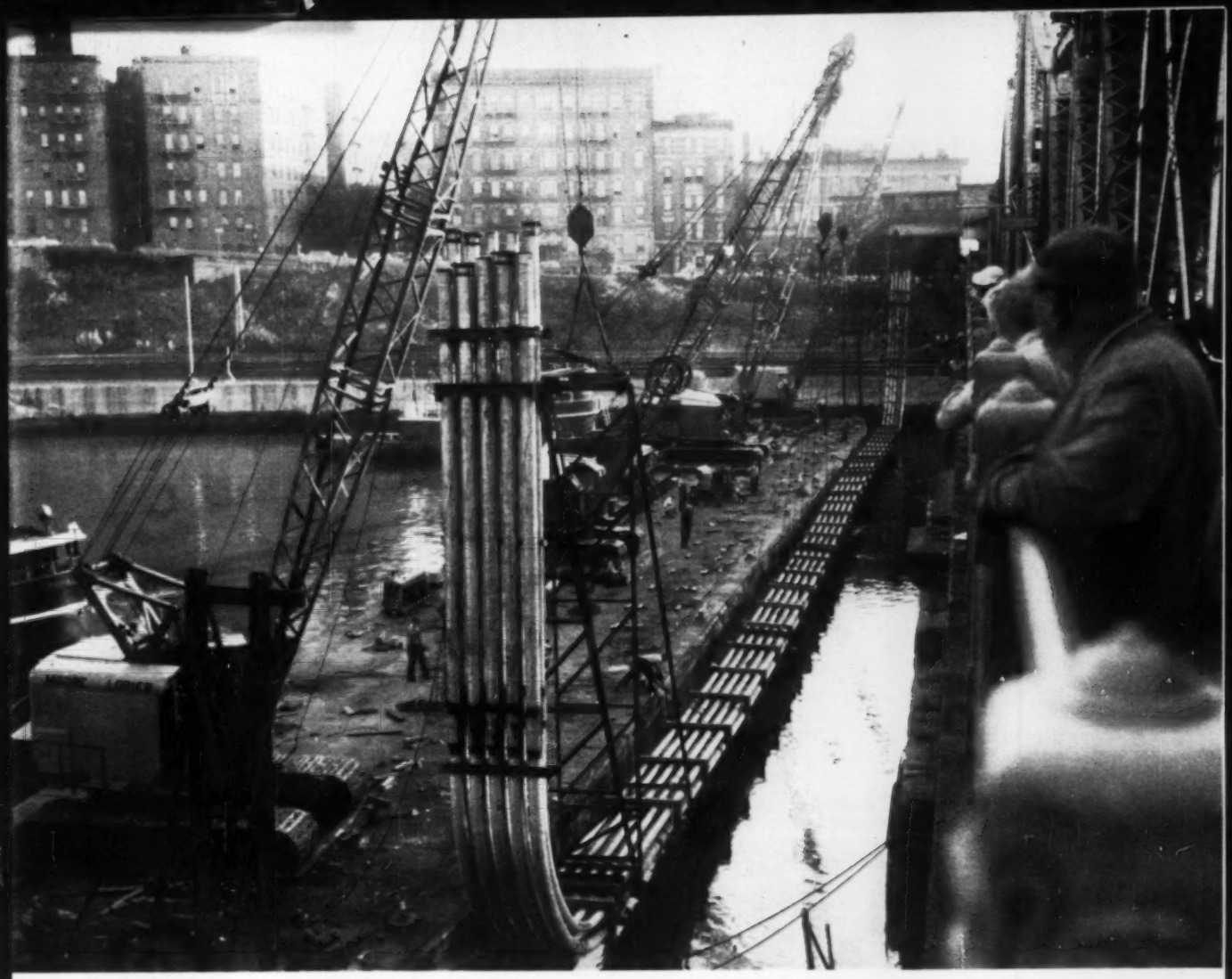
Road users in Kentucky may become victims of a paradox that promises to be hard on tempers and even harder on automobiles and trucks.

State highway officials say the state has thousands of miles of road badly in need of repairs, without enough money to do the job.

At the same time, figures show Kentucky's 1958 state road work awards to date are more than double those for the same period in 1957. Under the impetus of the interstate highway program, '58 awards through August 6 exceeded $42.6 million, compared with $18.5 million in awards for the same '57 period, and with $44 million for all of 1957.

A large part of the blame for condition of Kentucky's roads is attributed to the wettest summer in 30 years, following the roughest winter in 20 years.

Highway department spokesmen say more than 10,000 miles of secondary roads suffered winter damage that was beyond the limits of ordinary maintenance. And Director J. A. Spears of the division of maintenance says a large part of the mileage will have to go through the coming winter without any repairs.



Big Dunking: 80 Tons of Conduit

It took less than three hours last week to lower the 80 ton unit shown above into the Harlem River off Manhattan Island. The unit was 314 ft long and made up of 10 wrought iron conduits. They'll carry electric cables between the towers of a $16.4 million vertical lift bridge, which will replace an existing swing span (right) damaged by fire last year. Five of the conduits are 6 in. dia, the other five conduits are 8 in.

The conduits were assembled on the deck of a 327 ft long scow and were lowered by four cranes working in close coordination with each other. The unit was placed on a sand base in a 10 ft deep trench blasted into rock bottom 33 ft below the surface of water. The trench was backfilled with sand. An almost total absence of overburden above the rock of the river bottom made the expensive trenching procedure necessary to protect the conduits.

The pipe and its special sleeves were fabricated for the job by the A. M. Byers Co. of Pittsburgh. Placement was handled by the William M. Moore Building Corp. and the Lopier Construction Corp., both of New York City, which have the contract for installing the bridge piers.

The new structure was designed by Tippetts-Abbett-McCarthy-Stratton, of New York City. It will have two levels and carry both auto and elevated subway traffic across the river to New York City's borough of the Bronx (shown in the background).

There's a real construction problem facing the contractors who must erect the bridge: The city's Department of Public Works wants its new bridge built in the same location as the old structure, without disrupting traffic. The new span must also be positioned before the towers are erected.

Buried Sewer Floats to Surface in Canal

Scenic Rideau Canal in Ottawa, Canada, was shut down when a section of 42 in. dia steel sewer line buried in the canal popped up at the surface. Apparently a joint in the 35-year-old welded line failed through corrosion. The pipe came up in the center of the canal, ending up at a 30 deg angle and blocking all river traffic.

City and canal officials began draining the canal almost immediately to permit rapid repairs. Loose earth cofferdams were constructed on both sides of the broken line. The corroded pipe sections will be replaced and then the sewer will be encased in concrete.

Shipping on the canal is limited to pleasure cruising and sightseeing boats that tour the canal within Ottawa city limits. The canal connects with Lake Ontario and, through the Ottawa River, with the St. Lawrence.

Metal Panels Fly Off

Wind rips hotel facade as council talks code revision

Philadelphia's City Council was having a hot debate on panel-wall construction when strong winds whipped the new midtown Sheraton Hotel and tore six metal panels away.

The new council legislation liberalized building-code provisions for exterior-wall construction. Metal or clay wall panels now can be attached to the frame of buildings by bolts and clips; a thick masonry backup is not needed.

The Sheraton's metal panels were applied to a masonry backup with steel clips. These anchors apparently failed under the wind pressure.

Following the accident, architects and engineers investigated to determine the cause of the failure.

Robert Dean of the Boston firm, Perry, Shaw, Hepburn & Dean, who designed the Sheraton building, says:

"Unusually high winds caused by a freak storm whipped across the northwest side of the building. They caused a vacuum to form, which in turn buckled window frames and mullions and released six panels.

"It is assumed that winds reached a velocity of more than 100 mph, since the structure was designed to stand winds of up to that force. The masonry backup wall showed no signs of failure. No metal panels buckled nor was any glass broken. The failure occurred in the steel brackets only.

"Several window frames in adjacent portions of the building, where the mullions did not pull away, bowed at sill level and pulled away from the window stool about 1 in.

"It is felt that this particular incident acted as a release valve, releasing the pressure inside the building, thus obviating any structural damage."

$200 Million Wells Dam Moves Toward '59 Start

Construction could start next year on the 414,000 kw Wells Dam on the Columbia River as the result of a favorable feasibility report. The project would cost $200 million.

The report, which has not been printed yet, has been unofficially accepted by the sponsor, Douglas County Public Utility District. It was prepared by Bechtel Corp., San Francisco.

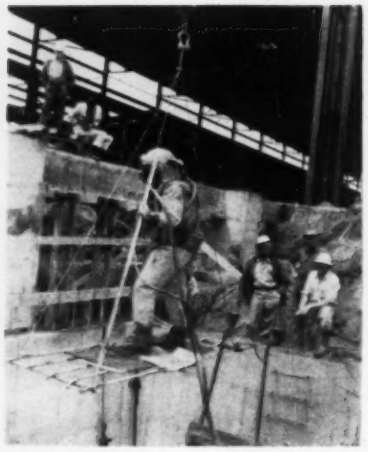
Further progress depends on whether Puget Sound Power & Light Co., which financed the Bechtel study in return for an option to purchase Wells power, will provide funds for more detailed engineering. But should Puget Power decline, other potential purchasers will be approached by the PUD.

In the meantime, the report, which recommends that construction start next year, will be sent to the Federal Power Commission. The Wells site lies between Rocky Reach and Chief Joseph Dams, near Wenatchee, Wash.

Alaskan Power Project Gets Go-Ahead Signal

Approval of loans to REA cooperatives has assured start of construction of the $14 million Cooper Lake hydroelectric project near Anchorage, Alaska.

Chugach Electric Association will build an earthfill dam across Cooper Creek, a power tunnel and a 15,000 kw generating plant with empty stalls for expansion to 30,000 kw. About 160 miles of high voltage transmission line also is involved.



Diver Dips Into Corn Field To Finish Deep Concrete Pit

Concrete finishing work in Coshocton, Ohio, requires a deep-sea diving rig. The situation arose in construction of Universal-Cyclops Steel Corp.'s stainless steel strip plant. Located in a former corn field, the plant requires 50 ft deep pits for foundations to support equipment. The local water table is only 30 ft down. Hence, the diver.

Pit holes were dug down 14 ft and concrete caissons 12 x 25 ft cast in them. As excavation inside proceeded, the caissons sank under their own weight. Concrete bottom mats were placed through the water. The diver went down to finish the mats by hand. When the concrete set, the water was pumped out.

It's Not the Contractors' Fault

The New Jersey Superior Court's Appellate Division has ordered the Atlantic City Housing Authority to bear the cost of repairing underground heating conduit at the Walter J. Buzby Village low-rent project.

The court reversed a 1957 decision by the Atlantic County Court, which awarded $60,284 to the Housing Authority from David Schrenell & Co., Union, N. J., plumbing and heating contractor who installed the conduit. The firm was held liable for the cost of repairing more than 70 breaks in the underground conduit that developed after it was installed in 1952 under a $165,200 contract.

Original plans called for laying the conduit on a concrete slab supported on piles driven to bedrock. The Housing Authority changed to a conduit that was claimed to be adequate without the concrete slab and, according to court records, saved $5,000 on the concrete work. But the substituted conduit cost $5,000 more than the original system.

After 70 breaks occurred in the system, the Housing Authority filed suit against Schrenell. County Court Judge Naame ruled Schrenell had guaranteed the installation and held the firm and its bonding company, Manufacturers Casualty Insurance Co., liable.

Appellate Judge Edward Gaulkin ruled that Schrenell had never guaranteed the substitute conduit, but the conduit manufacturer had—if the work was performed according to its specifications. However, Judge Gaulkin said almost every break in the conduit occurred where the conduit entered the buildings. The breaks were attributed to the fact that the conduit was suspended on hangers for distances of 3 to 15 ft from the buildings up to the pile supports. Soil under the conduits washed away and the soil above pressed down, causing the breaks, the judge said. And since the Housing Authority approved the use of hangers to support the conduit it could not blame Schrenell or the conduit manufacturer.

In drydock, floating pontoons for draw section and anchor boxes are prepared for 40 mile trip to site.

Floating Bridge Concrete Towed to Site

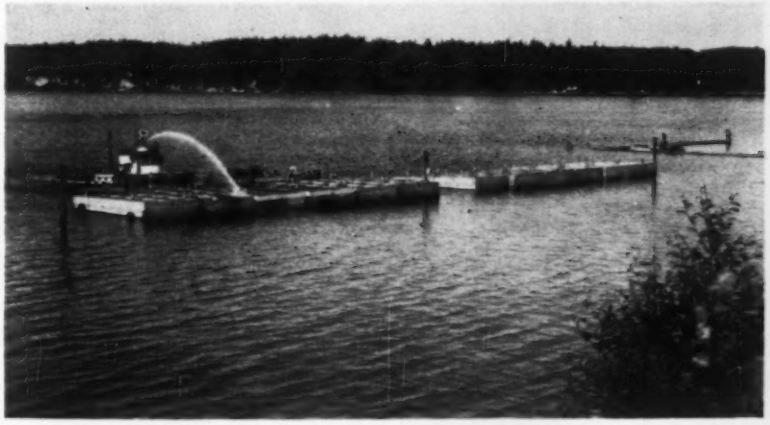
First anchors and pontoons for the $17.5 million floating bridge to be constructed across Hood Canal for the Washington Toll Bridge Authority have been floated from their drydock.

Twelve anchors (42 are required for the project) have been towed 40 miles to the bridge site, filled with water and beached until needed next spring. Then, the water will be pumped out at low tide, the anchors will be floated to their exact locations, filled with concrete and sunk. Each anchor is 19x40 ft in size, 16 ft deep. Cables will extend from the anchors to the pontoons forming the bridge.

First pontoons to be completed include one of the draw sections, which will be pulled back to permit the passage of large ships, and one of two transition pontoons between the fixed approaches and the floating bridge. These pontoons now are tied up in the Duwamish waterway while work proceeds on their superstructures, which will support the bridge roadway.

In addition to the draw and transition pontoons, the project will require 21 other pontoons, each 50x360 ft and 14 ft deep. These concrete boxes will be towed to the bridge site next spring.

The floating section of the bridge will be 6,470 ft long. It will include two movable sections, which will swing out to make a 600 ft opening for ships. Two 280 ft steel truss transition spans will flank the floating structure, providing fixed channels for small vessels. There will be fixed approach spans consisting of multiple lines of welded steel girders on concrete piers.



AT BRIDGE SITE, anchor barges are filled with water to sink them. Next spring they'll be emptied, placed in position and filled with concrete.

The bridge will cross an arm of water west of the main body of Puget Sound. It will carry two lanes of traffic, one in each direction. Completion is scheduled for May, 1960.

Charles E. Andrew, chief consulting engineer for the Washington Toll Bridge Authority, supervised design of Hood Canal Bridge. He had the same responsibility for the Lake Washington floating bridge. Unlike the Lake Washington structure, Hood Canal Bridge has prestressed pontoons; it is in salt water requiring corrosion protection for its cables; and it has six times the tidal range (18 ft.).

The contract for $15 million worth of anchor and pontoon construction and placement is held by Morrison-Knudsen of Boise; Puget Sound Bridge & Dredging and General Construction Co., both of Seattle; and Henry J. Kaiser Co., Oakland, Calif.

Frame Completed for Huge Convention Hall

Structural framing is now in place for an exhibit and convention building in Detroit that will provide 400,000 sq ft of exhibit area and an auditorium that will seat 10,000. The field-bolted frame required 19,500 tons of steel.

The exhibit portion will be a third larger in floor area than the New York Coliseum and will straddle the six-lane John Lodge Expressway (ENR Mar. 29, 1956, p. 25). It will be 715 ft long, 440 ft wide and 103 ft high. The auditorium is circular, 340 ft in diameter.

The huge structure, known as Cobo Hall, now is estimated to cost about $54 million, compared with a 1956 estimate of $30 million.

Steel erection started last January and was topped out August 15, 90 days ahead of schedule. R. C. Mahon Co., Detroit, held the prime contract totaling $8,771,000 for the steel. Convention hall steel was subcontracted to Whitehead & Kales, Wyandotte, Mich. O. W. Burke, Inc., Detroit, is the general contractor. Giffels & Rossetti is the architect-engineer.

Moscow Bureau Opened To Serve ENR Readers

This week McGraw-Hill Publications will add another name to their mastheads: Moscow.

The listing announces a new foreign news bureau. And when it begins covering beats from the Metropole Hotel, it will be the first service McGraw-Hill has had in Russia since 1947—and reportedly the only bureau now operating there for a magazine publishing firm.

The Moscow addition to McGraw-Hill foreign coverage will be the company's 8th bureau abroad (others are in Bonn, Beirut, Caracas, London, Paris, Mexico City and Tokyo). And it will be a vital link with its chain of 61 correspondents stationed around the world.

Engineering News-Record—to supplement coverage from McGraw-Hill's worldwide news network and its nine domestic news bureaus—has its own string of correspondents in 79 major cities in the U. S., its possessions and Canada.

Toledo Grain Elevators To Cost Over $10 Million

The Toledo-Lucas County (Ohio) Port Authority plans to spend between $10 and $12 million for construction of grain facilities at the port as soon as the needed land is acquired.

Bids for leasing of the facilities already have been received and tentatively accepted by directors of the Authority.

Principal construction items on the project will be two elevators capable of holding a total of 8 million bushels of grain. They will be built on 14 acres of land owned by the New York Central Railroad and the Wabash Railroad. The Port Authority has purchased an option on the site, which is five miles upstream from Maumee Bay on the west bank of the Maumee River, near downtown Toledo.

According to E. O. Jewell, general manager of the Authority, completion of the grain elevators and opening of the St. Lawrence Seaway will enable Toledo to handle considerably more grain from a larger area of the Midwest and will improve the city's position as a grain distributing center.

News Briefs . . .

• **Big dam start**—A 1959 start on construction of the $138 million Keystone Dam on the Arkansas River is planned by the Tulsa District, Corps of Engineers. The dam will be a 121 ft high earthfill. It will have a crest length of 4,570 ft and a reservoir capacity of more than 1.8 million acre-ft. Land acquisition is in progress.

• **Great Lakes pipeline**—The Ontario Water Resources Commission has recommended construction of a 21 mgd pipeline to tap either Lake Erie or Lake Huron to improve the water supplies in western Ontario. The proposed line tapping Lake Erie would be 25 miles long and cost $8 million. If Lake Huron were tapped, one of three alternate lines would be from 33 to 43 miles long and cost from $9 to $11 million.

• **New Milwaukee museum**—The Milwaukee Common Council has authorized construction of a new public museum in the city's civic center area. A $7½ million bond issue for the building was approved in a 1956 advisory referendum by city voters. The city will sell museum bonds in 1959. Construction is expected to start late in 1959 and take a year and a half to complete. The current museum is housed together with the public library in one building.

• **Utility relocation law upheld**—A Texas district court judge has upheld the constitutionality of a new state law allowing full reimbursement to both public and private utilities for relocations due to the interstate highway program. Repayments would be split between federal and state funds on a 90-10 basis. Cost of relocations over the interstate program has been estimated at $100 million.

10-TON CRANE LOADS on monorails inside the tunnel of the Piney Branch Storm Sewer project are supported by Commercial ribs and plates in addition to the tremendous overburden.

Supports tunnel overburden plus 10-ton crane loads

"Commercial steel liner plates and ribs are being used on our Piney Branch Storm Sewer project in Washington, D.C. because their shoring strength speeds safer tunneling and cuts costs," says James L. McLlvaine, Project Manager.

Seven key men in the Underground Construction Company, contractors on the job—representing over 100 years of combined tunnel-driving experience—chose Commercial steel plates and ribs for the structural support while driving this 4,300-foot tunnel.

EASY TO INSTALL Commercial liner plates and curved ribs are contributing to the rapid advance on the job indicated Mr. McLlvaine—are helping make possible daily progress of about 10 to 15 feet in the mining and shoring of a tunnel 20-feet, 4-inches in diameter through mica schist which deteriorates upon contact with air and water. One man handling of the Commercial plates and rib segments is routine.

COST CUTTING FEATURES are designed right into Commercial tunnel supports. Because these steel liner plates are bolted directly to the web of the formed ribs, at least two inches of mining outside of the pay line—or a total of 800 cubic yards—is being saved on the entire project.

STEEL PROTECTION moves right along as mining progresses—leaves no area unprotected. The superior shoring strength of Commercial ribs and plates provides complete protection for sandhogs working 100 feet below the surface

COMPLETE ENGINEERING ASSISTANCE is available to help *you* with your next tunnel project—sub-surface or surface, long or short. Take advantage of Commercial's 25 years of experience in the design of supports for soft ground or rock tunnels. There's no obligation. Address inquiries to The Commercial Shearing and Stamping Company, Dept. E-35 Youngstown 1, Ohio.

ACCURATE TOOLING before delivery on the job simplifies and speeds up shoring operations. Bolt holes in ribs and liner plate flanges line up perfectly.

"THEIR SHORING STRENGTH IS VIRTUALLY GUARANTEED," is James L. McLlvaine's comment about the steel tunnel liner plates and ribs supplied by Commercial.

COMMERCIAL
shearing and stamping

Vibration of

Edward H. Wells
Chief Engineer
Sargent-Webster-Crenshaw-Folley
Syracuse, N. Y.

Thanks to fairly new vibration methods of soil compaction, three schools now going up in the Schenectady-Albany area of New York state will cost about $150,000 less than early estimates indicated. The saving amounted to about one-fifth of the total costs of the foundations.

Neither the conditions nor treatment needed were the same at the three sites. However, all three areas had one thing in common: soil type.

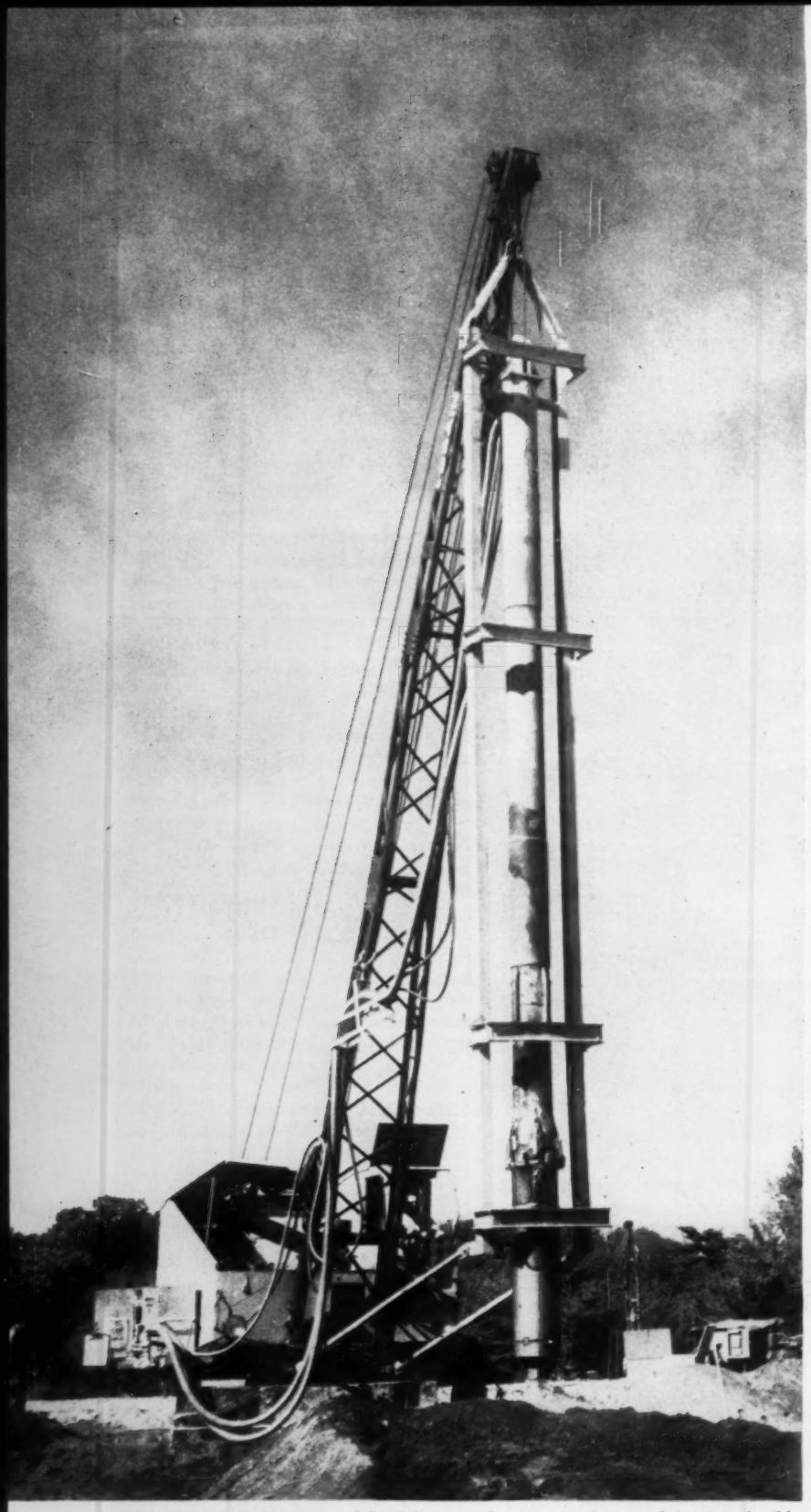
Subsurface investigations indicated the soil was generally a uniform, loose, fine sand with traces of silt from surface to a depth of 20 to 30 ft. Groundwater at or above probable footing elevations existed on two of the sites. It was apparent that normal spread footings were not feasible and that extra cost would be incurred in constructing the foundations.

• **Piles too expensive**—One foundation possibility in each case was to sink end-bearing piles to hardpan or shale below the loose sands. But the cost looked high.

For Colonie elementary, 20 ton cast-in-place concrete piles averaging 40 ft in length would have cost $55,000. For Colonie junior high, 30 ton piles 60 ft long would have cost $105,000. And for Scotia-Glenville senior high, 30 ton piles 35 ft long would have cost $90,000. These figures made it necessary to look for more economical ways.

Further studies included mechanical analysis of the boring samples and investigation of dewatering and compacting methods. The sieve analyses revealed unusual grain-size characteristics. Samples taken from ground surface to 20 ft deep on all three sites consisted of about 80% fine sand with a very narrow range of particle sizes. (See grain-size distribution curve p. 32.)

• **Surface vibration**—On the site of the elementary school in Colonie, we found that the water table could be permanently lowered by a gravity drainage system at moderate cost if the building floor elevation were raised two or three feet above existing grades. The slab-on-grade construction typical of most of the building resulted in few concentrated loads and very low unit loading on foundations. Settlement calculations consequently indicated that only a rela-



VIBRATING CAISSON consolidated loose sandy soil to make spread footings feasible. Alternative was piles, at considerably higher cost.

Sand Cuts Foundation Costs 20%

tively shallow compaction of the material under the footings would be necessary.

After the drainage system was installed, base-course fill was placed and compacted along the footing lines. Earth down to 2 ft below the bottom of the footings was replaced with a clean, select gravel fill. The material was spread in 12 in. layers by a bulldozer and compacted to 90% relative density. The job was done by vibrating rollers, a fairly new method of compaction, developed in Sweden and introduced into this country about five years ago. Three passes were enough in most cases.

Total cost of the compaction work and additional cost in the drainage system, above that normally required, was $25,000—about $30,000 less than the usual cast-in-place piles.

• **Vibration in depth**—Site conditions at Colonie junior high were tougher. It was impossible to lower the groundwater table appreciably, permanently. To compound the difficulty, building loads were much greater than for the one-story elementary school, which meant the sand had to be compacted to a greater depth.

The problem of deep compaction—mostly below the water table — was solved by a proprietary system, Vibroflotation. It was developed for compaction of granular soil in Germany shortly before World War II and introduced to this country in the late 1940's. The main item of equipment is a cylindrical steel casing tipped with water jets and containing an electric-motor-driven eccentric rotating weight as a vibrator. The casing jets itself into the ground to the desired depth, its penetration aided by the vibrator. The vibrations consolidate the surrounding sand. As the grains moves closer together, more soil is introduced at the surface to fill the space and the casing is withdrawn slowly. The result is a compacted sand cylinder about 8 ft in diameter.

Compaction at the Colonie school was specified for a depth of 20 ft below footing grades. About column centers, it was required within a radius of 10 ft. Along the line of continuous footings, single penetrations of the casing were called for every 6 ft.

The job was carried out from an elevation 10 ft above the level of the future footings. A relative density of 60% was specified and well exceeded. This permitted design soil bearing values of 1½ to 2½ tons per sq ft for conventional spread footings.

CAISSON TIP is equipped with water nozzles so it can jet itself into the soil.

SAND IS ADDED to fill spaces opened up as vibrations consolidate original soil.

The job required about 700 compactions. Including site clearing, this phase of the work took about a month and cost $52,000. Piles would have cost at least twice as much.

• **Dry site at Scotia**—All the borings at the Scotia-Glenville site showed that, unlike the two Colonie sites, it presented no water problems. Greater building loads, however, promised trouble. Even large spread footings were considered likely to settle 5 in. Most of this predicted settlement was attributed to anticipated compression of material in the first 10 ft below the footings.

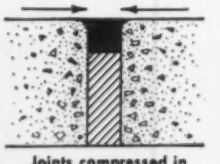
(Story continued on p. 32)

for *EFFECTIVE* joint sealing

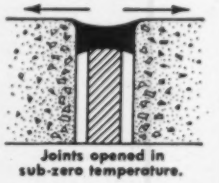
HOT POURED PARA-PLASTIC®

Para-Plastic is the *original* hot poured rubberized asphalt joint sealing compound that forms a resilient, adhesive and effective seal which maintains bond at sub-zero temperatures. Unaffected by extremes of temperature, Para-Plastic insures a moisture-tight seal of expansion, contraction and dummy joints in concrete pavement of all types. Para-Plastic JF is a special hot poured rubberized thermoplastic compound especially developed for sealing joints in pavement where they would be affected by spillage of jet fuel or other petroleum solvents used by aircraft.

Drawings at right illustrate sealing characteristics of Para-Plastic Joint Sealer during extremes of temperatures.



Joints compressed in warm weather temperatures.



Joints opened in sub-zero temperature.

COLD APPLIED ZERO-LASTIC®

Cold-Applied Zero-Lastic is available in two types: 1. Ready mixed regular Zero-Lastic designed for sealing narrow joints (¼" and 3/16" wide) in concrete pavement where application of other types of material would be difficult without special equipment, and 2. Zero-Lastic JF a two-component jet fuel resistant sealing compound which sets up into a resilient rubber-like seal which is resistant to damage from petroleum solvents, for sealing joints in airfield aprons and other concrete pavement used by aircraft. Applied with pressure application equipment.

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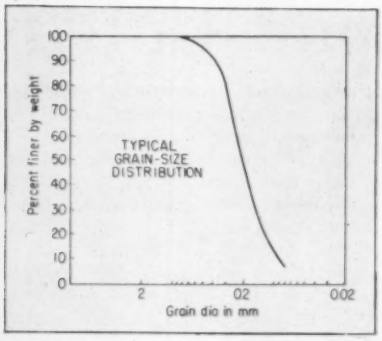
. . . Sand compaction



NEAR-VERTICAL ALIGNMENT of this curve indicates uniform size of soil particles.

For design purposes, a total allowable settlement of 1½ in. was assumed, and the density necessary to remain within this limit was calculated. As at Colonie elementary, vibrating rollers were used to compact the sand. Minimum relative density of 95% and a minimum of six passes with the roller were specified. Six were enough over most of the area.

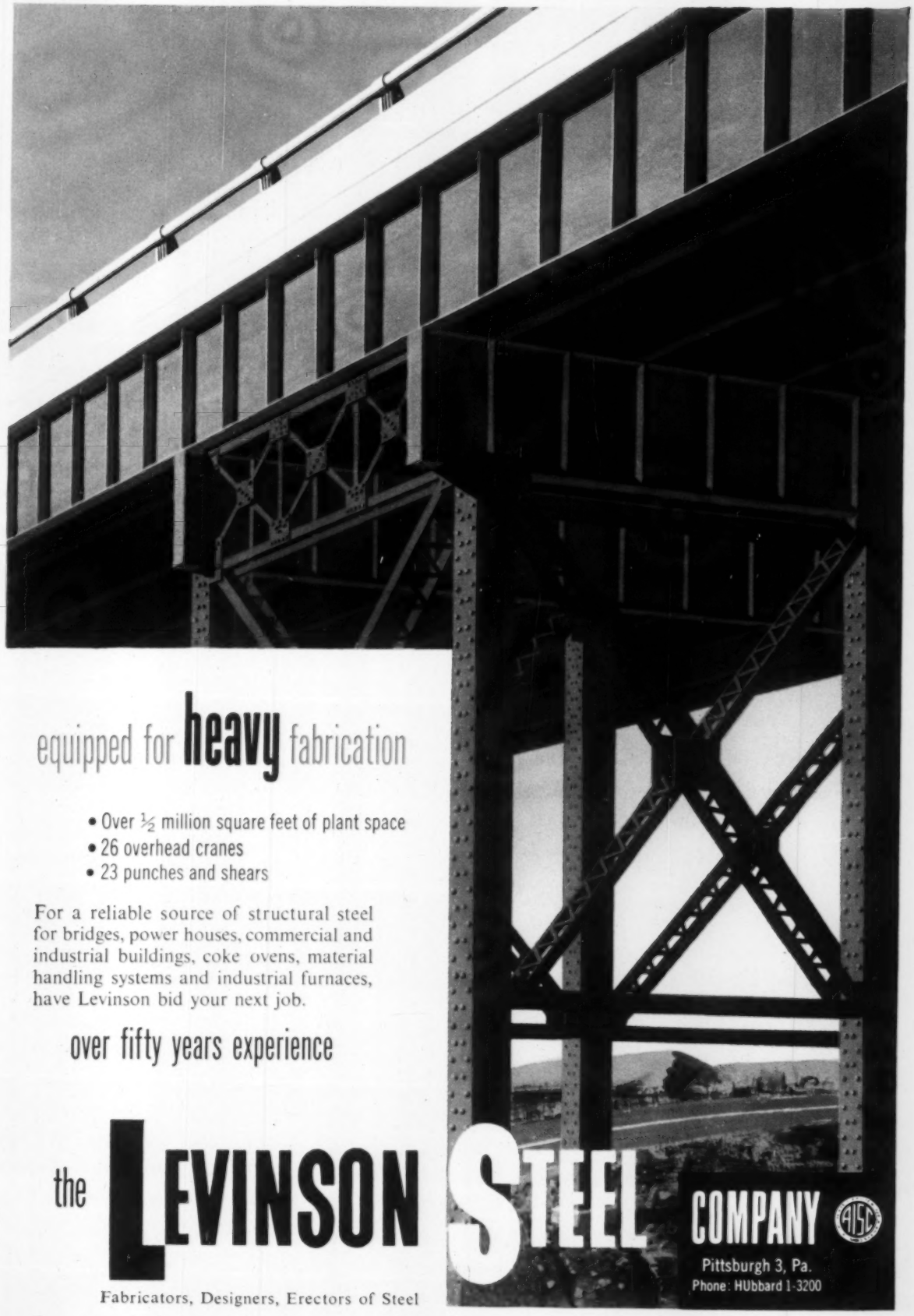
It was necessary under heavily loaded isolated footings to trench to a maximum depth of 5 ft below footing grades to start compactions. Under most of the footings, however, the work was done at footing grade.

Design soil bearing values for the spread footings were again taken as 1½ and 2½ tons per sq ft. Load tests performed before and after compaction indicated that the operation cut settlements by about two-thirds. Reductions were much greater where materials were loose.

Accurate observations during and after construction showed total settlements were considerably less than the originally assumed maximum.

Compaction at Scotia cost $25,000, about $60,000 to $65,000 less than piles.

All three schools were designed by Sargent-Webster-Crenshaw & Folley, of Syracuse, N. Y. Sarkis M. Arkell was project manager. Solution of foundation problems was the responsibility of the writer. B. K. Hough of Ithaca, N. Y., was consulting engineer on soils and foundations and prepared the specifications for the compaction work on all sites. At Colonie elementary school the general contractor, Sano-Rubin Construction Co., of Albany, N. Y., performed the compaction. At Colonie junior high, Vibroflotation Co., of Pittsburgh, U. S. licensees of the German originators of the vibrating caisson method of consolidation, did the site clearing and compaction. At Scotia-Glenville, the general contractor, Lange-Finn construction Co., of Albany, handled the compaction.



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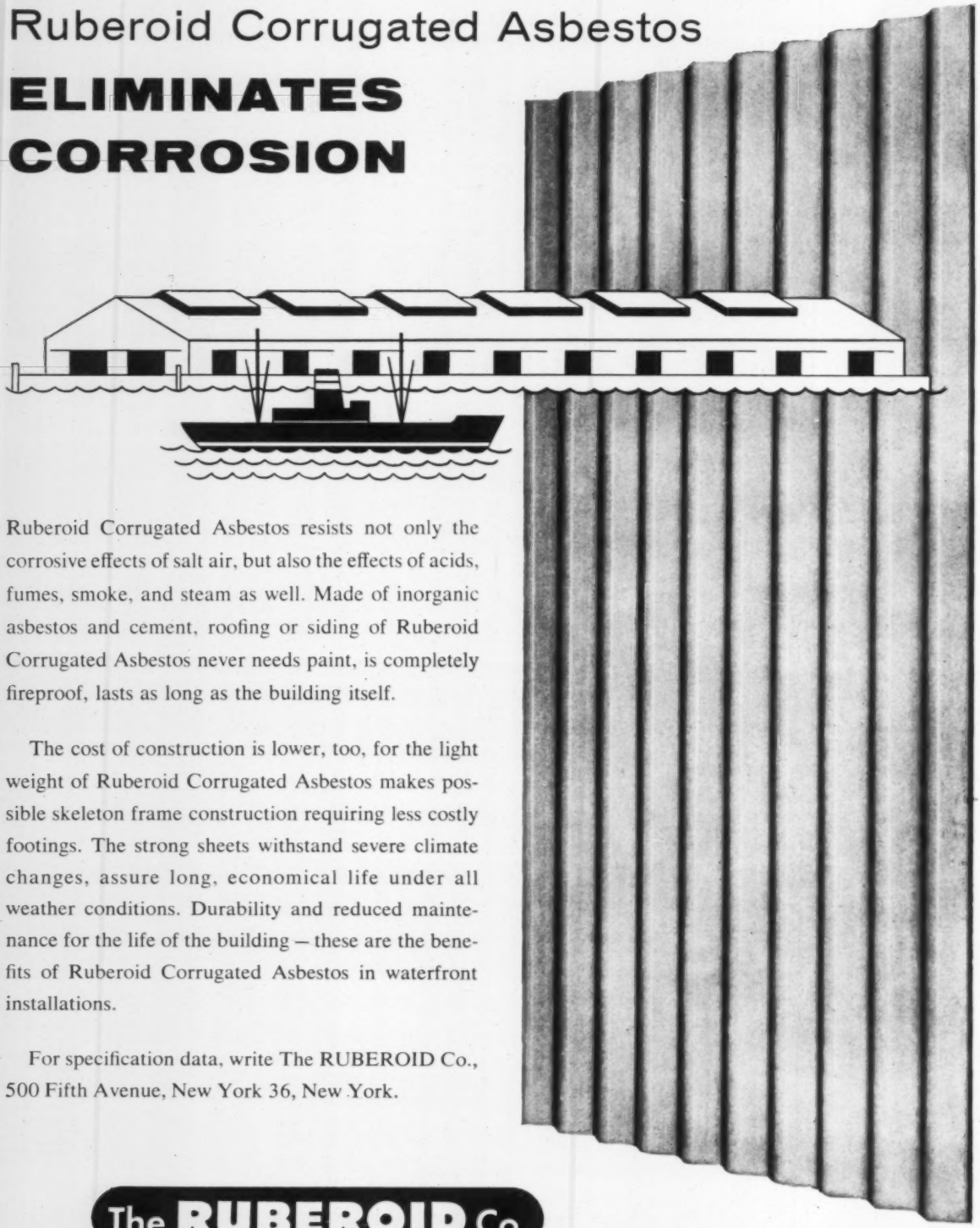

Ruberoid Corrugated Asbestos resists not only the corrosive effects of salt air, but also the effects of acids, fumes, smoke, and steam as well. Made of inorganic asbestos and cement, roofing or siding of Ruberoid Corrugated Asbestos never needs paint, is completely fireproof, lasts as long as the building itself.

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ASPHALT AND ASBESTOS BUILDING MATERIALS

Ten-year record indicated plenty of water here . . .

But the river went dry soon after intake was built.

How to Figure Odds on a River Project

W. B. Langbein
and
G. N. Alexander
Hydraulic Engineers
U. S. Geological Survey

There are always uncertainties when engineering economics are based on records of past river flows. Two of them in particular can cause errors:

1. No matter how long the period of record, it is merely one small sample of the river's lengthy history and probably does not represent the true history.

2. The economic life of the project under consideration will be relatively short, compared to life of the river; flow variations during the project's life may not correspond to the predicted flows based on the past record.

A statistical concept called confidence limits can reduce these uncertainties by defining the odds on how close the predicted flows will come to being right. The odds then can be charted to construct a graphical solution to such questions as: What are the chances of realizing the expected net benefits? chances of no return? odds of an unexpectedly high return?

The concept of confidence limits recognizes that flow duration curves drawn from past records will vary for different periods of record. The chances that other periods of record would differ from the one sample available can be inferred statistically.

The statistical analysis does not tell where to find the curve truly representative of the river's whole history, nor where the curve of the available record lies in relation to it. But it does give an idea of how the single available curve differs from the true.

The probabilities that the true curve will occupy positions lower than indicated are then charted about the curve of the sample available. A family of curves is drawn connecting the points of equal probability, as shown in Fig. 1 (next page). These curves can be drawn for any probability desired and are called the confidence limits. In the graph, there is a 9 to 1 chance that the actual flows will be between the 95% and 5% curves.

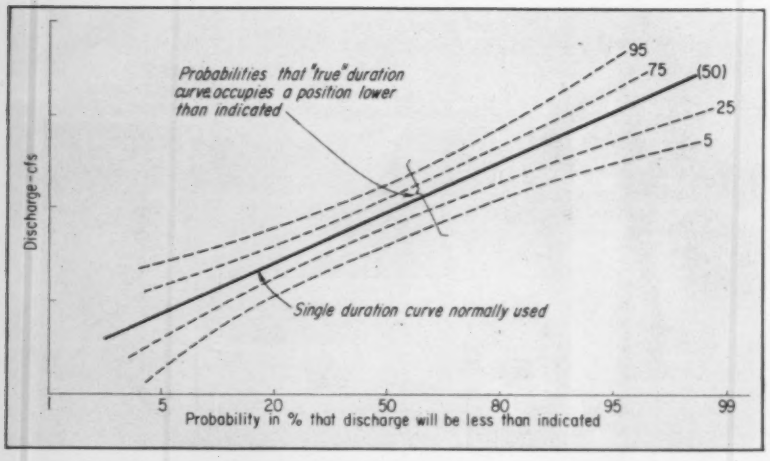
• **How curves vary**—How confidence curves can be constructed is explained in Techniques of Statistical Analysis published by McGraw-Hill Book Co. This article shows only how confidence curves are used as decision-making aids. The curves are expressed in terms of probabilities and are wider apart for a short record than for a long one. Roughly, the range of flows between any two probabilities varies as the square root of the length of the record.

The distance of the confidence curves from the sample curve (the 50% curve) depends on the sampling error inherent in the period of record (n_1 years) and the variance error during the life of the project (n_2 years). Both errors are combined according to the formula $N = \frac{n_1 n_2}{n_1 + n_2}$, where N is expressed in years and is always less than n_1 or n_2. It is a number indicative of the width of the confidence bands. The longer n_1 and n_2 are, the narrower will be the confidence bands about the sample duration curve and the more accurate the decision will be.

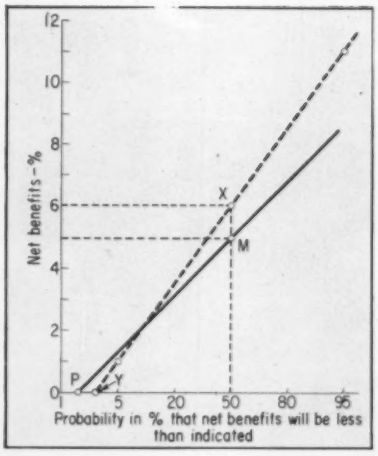
• **How confidence limits help**—To use the confidence limits in studying an economic decision for a project, the probabilities of various net benefits (directly related to flows) obtained by using Fig. 1 are plotted on a graph, such as Fig. 2. Figure 2 is a relationship between probabilities of flows and the benefits derived from them. Then the investment standards, such as the chance to be taken of failure and of achieving the net benefits wanted, are plotted and a mechanical solution to the economics can be obtained.

• **Example of use**—Usually the analysis of costs and benefits is based on a single duration curve built from the available record. To construct the graphical solution, this computation is repeated

Photos above show Tuy River water supply intake for Caracas, Venezuela, part of a $42 million project completed in 1956. Ten-year records showed a low flow of 70 cfs, but flow was recently only 18.5 cfs, which caused a water famine in city.



1. NEW APPROACH to figuring future stream flows from past records employs confidence limits. They show how much single frequency curve normally used can vary.



2. PLOT OF BENEFITS at various flows against investment criteria is key to analysis.

for the duration curves corresponding to several probabilities as shown in Fig. 1. This gives a set of net benefits and corresponding probabilities that are used to determine the dashed line XY in Fig. 2.

The selection of probability limits for sketching in Fig. 1 is a matter of choice. This selection does not affect the position of the line XY on Fig. 2. It only affects the selection of points for drawing the line. Each probability curve defines one point on the curve XY of Fig. 2.

For example, 75,000 kw power plant has an annual cost of $1.1 million amortized over a 25 year period. No more than 2% chance is to be taken that net benefits will be zero. There must be an even chance that expected benefits will exceed 5% of investment.

In usual practice the annual energy production would be computed from the single available duration curve. Let us assume for a curve based on a 40 year record, the 75,000 kw plant's annual production is 400 million kwh, which translates to a net benefit of 6%. Since the single curve from the available record always corresponds to the 50% probability curve when confidence limits are built, the value of 6% net benefits can be plotted as point X in Fig. 2.

For the 95% probability curve in the example, let's assume the annual energy production works out to 450 million kwh and for 5% curve, 350 million kwh. Those correspond to returns on investment of 11% and 1%, respectively. These three points (any two would do) define a line that is extended to intersect the zero ordinate at point Y. Y gives the probability that the project will yield no net benefits, in this case 3%.

Then the investment standards to guide the decision on the economic feasibility of the example project are charted. Since a 50% chance is wanted that a 5% return on capital investment will be earned, this is plotted as point M in Fig. 2. The greatest risk that the investor is willing to take that the net return would be zero is 2%. This is plotted as point P. The line MP is drawn connecting the points and the feasibility of the project can be judged.

• **Determining feasibility**—For clear acceptance of any project, X (mean net benefits) must be greater than M (probability of the specified net return), and Y (chance of no return) must be less than P (chance investor is willing to take of no return).

The project may be in doubt or rejected if the line XY is steep. For even if X is greater than M, Y may be greater than P. Line XY is steep when the confidence bands are wide, which occurs when either or both the length of the available record and the economic life of the project is short.

If the slope of XY is flatter than MP, then Y must always be less than P. In this case, if XY is extended to intersect line MP above X, it does not imply that the project be rejected, but rather that high returns are unlikely.

In the example, since the 3% probability of zero benefits (point Y) is greater than the specified 2% (point P), the project is not feasible on this account. However, the 6% expected return (point X) is greater than the specified 5% return (point M).

The decision is then unclear. It may be necessary to test a smaller plant requiring less water since it would be less affected by variation in flow.

But the situation on the 75,000 kw plant, if not clear cut, now has several more facts on which to base the decision whether or not to build.

The choice of a critical probability below which the project should be rejected should precede and be independent of the analysis of costs and benefits.

Are Long Flow Records Really Needed?

It is easily shown that the width of the confidence band is inversely proportional to the square root of the effective period N, where $N = n_1 n_2 / n_1 + n_2$ and n_1 = years of record and n_2 = project life. Assuming a project life of 50 years, the effect of various lengths of stream flow records on the width of confidence bands is as follows:

Years of record (n_1)	Width of confidence band
5	0.47
10	0.35
25	0.28
50	0.20
100	0.17
1000	0.145
∝	0.141

It can be seen that the width of the confidence band decreases with increasing length of record rather rapidly until n_1 reaches about 50 years. Beyond that the reduction in net error is rather slow. In fact, even with an infinite record, the irreducible error is still 71% of that for a 50 year period.

This limitation raises an important question of the need for long records in solving engineering problems. Is the repeated cry for long records overdone? Considering the opportunities for and the high likelihood of artificial changes in regimen of a stream that introduce considerable bias in a record and impair its hydrologic consistency, it would seem that the answer is yes.

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You don't need expensive handling or lifting equipment to install a Corrugated Metal Pipe Structure. The pipe comes in long lengths ready to lay, and since it is light and easy to handle, requires less time to install. For example, three men can properly install a 20′ length of Corrugated Metal Pipe in a matter of minutes. Corrugated Metal Drainage Products made from USS Galvanized Steel Culvert Sheets do not require "kid glove" handling. If dropped, they will not crack or spall. There are no losses due to breakage. Consequently, it is only necessary to order the lengths required to complete the job.

Write for our free booklet "USS Culvert Sheets" which tells you how to get the kind of service you can expect from Metal Drainage Structures made from USS Galvanized Steel Culvert Sheets. It's loaded with information about selection of correct structure sizes, preparing foundations and installation procedure. For your free copy, write to United States Steel Corporation, Room 2801, 525 William Penn Place, Pittsburgh 30, Pa.

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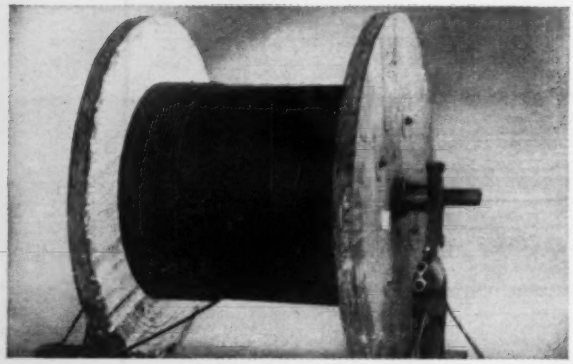
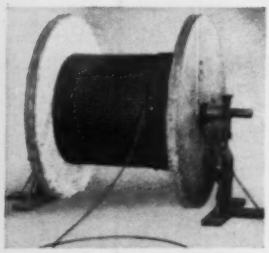
Tuffy® Wire Rope

How to Get Longer Service from Wire Rope: Proper Unwinding, Socketing, Seizing, Clipping



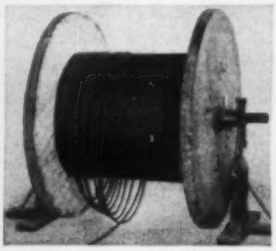
Here's the way to set up reel for unwinding

The stock reel should be set up on jacks, so the rope will come from the under side of the reel as shown in this picture.



Reel set up WRONG

The rope is coming from the top of the reel and forming loops as the reel over-runs. These loops are likely to form kinks and dog-legs, which can be ruinous to rope life.



Reel set up RIGHT

Unwinding has started, and the reel is spinning faster than the rope is being pulled off. But because it's coming from the under side of the reel, the rope is simply loosening on the reel, with no damage.

Simple way for PROPER SEIZING

Since practically all wire ropes today are preformed, we suggest that when cutting you put only one seizing on each side of the cut.

For ropes other than preformed, *three* seizings should be used on each side of the cut so there will be no misplacement or relative movement of strands. *Four* seizings on each side are required for a lang lay rope, or any rope having an independent wire rope core or a wire strand core. *Four* seizings are also needed for all 18x7 ropes, and all ropes larger than 1" diameter.

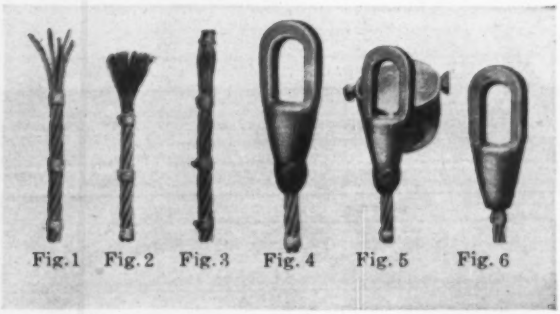


Fig. 1 Fig. 2 Fig. 3 Fig. 4 Fig. 5 Fig. 6

Nine Steps of Correct SOCKETING

1. Securely seize and serve with soft wire ties before cutting, and have at least two additional seizings placed at a distance from the end equal to the length of the basket of the socket.

2. When the rope is properly seized, take off the end seizing. Cut the fiber center back to the seizing, as shown in Fig. 1 above. Untwist and broom out the wires. See Fig. 2.

3. Clean the wires for the distance they are to be inserted in the socket. Use benzine, naphtha, gasoline or other solvent. Then wash off in boiling water or boiling ammonium chloride used in Step 5.

4. Then dip cleaned wires in commercial muriatic acid to a depth not greater than ¾ of the cleaned length of wire. Keep the wires immersed for 3 minutes, or until the acid has thoroughly etched each wire. Be sure acid does not contact any other portion of rope.

5. Immerse wires into boiling ammonium chloride. A white coating will be left on the wires.

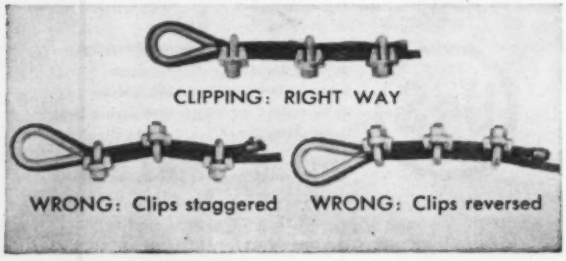
6. Place a temporary tie wire over the ends of the cleaned wire (see Fig. 3). Be careful not to get the cleaned wires greasy or oily.

7. Insert the rope end into bottom of socket. Remove temporary tie wire.

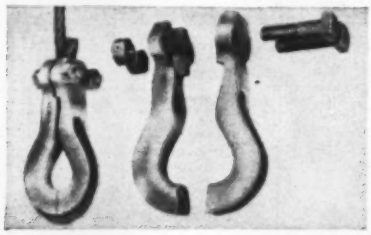
8. Holding the rope vertically in a vise, set the socket so that the wires are flush with top of the socket basket and seal the bottom with putty or clay (Fig. 4). Pour in among the wires about ½ teaspoon of sal ammoniac crystals.

9. Pour molten zinc into the basket to fill (Fig. 5). When zinc is solidified, remove seal. Socketing is complete as shown in Fig. 6.

58-3



Tips

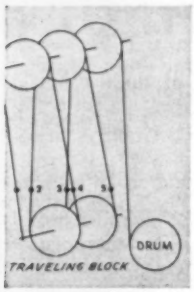


Be sure to use right FITTINGS

The fitting you use on wire rope can handicap it or enable it to work at full efficiency. Fittings which derive holding power from crimping action are harmful to the rope.

Shown here is a clamp that has no wrong side—can be put on either way. It snugly saddles the rope, grips larger surface area in such a way that loads are carried almost solely by friction rather than by crimping action. Combined in its two parts is a thimble and the parts are interlocking to prevent collapse of the thimble and to eliminate all shear on the bolts.

How to figure REEVING loads



Reeving ropes through the sheaves multiplies the number of parts supporting the load. The lead line to the drum carries the weight of the load lifted, divided by the number of parts of line supporting load, plus the accumulation of friction on all sheaves.

Here's how to count the number of parts supporting the load. Draw an imaginary line across the parts of the rope supporting the load.

The efficiency of reeving systems ranging from one to eight parts is shown in charts which Union Wire Rope engineers make available to users.

Your Tuffy distributor will help you with any wire rope problem

If you aren't acquainted with him, look under "Wire Rope" or "Slings" in the classified pages of your telephone directory. And ask him to put you on the mailing list for free "Rope Dope" educational bulletins. They're packed with boiled-down, useful information on the selection and care of wire rope for greatest service.

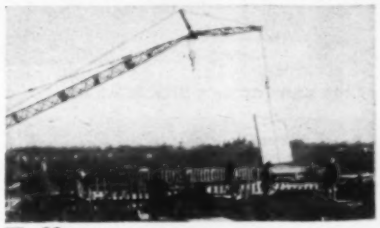
Extra Strength Alone Is Not Enough . . . Wire Rope Must Be BALANCED

Union Wire Rope Corporation has been making extra high strength rope for years for such uses as chokers in the logging industry, coke breakers in refineries and other purposes where it is a factor that overrides other rope characteristics.

But strength alone is not always the answer to the question of the proper rope to use. Extra high strength does not increase flexibility, resistance to crushing, abrasion or fatigue. It does not overcome the internal nicking and galling which occurs as the oil film breaks down from excessive pressures. It does not compensate for the core crushing which accompanies excessive loading. Extra high strength, in short, is not the only factor in proper design and use of wire rope.

Union Wire Rope combines such qualities as strength, flexibility and toughness in the properly balanced relationship to assure most efficient service and longest life in the operation for which the particular rope is designed. In most applications, extra high strength can add little to rope service if it throws other rope factors out of balance.

Tuffy BALANCED Special Purpose Wire Ropes

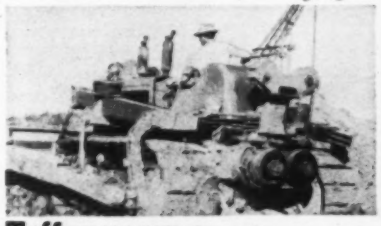


Tuffy BALANCED Slings & Hoist Lines

Top-performing team in every type of materials handling. Tuffy Slings are made of a patented, machine-braided fabric; stays extra flexible, can't be seriously hurt by knotting or kinking. Tuffy Hoist Line is a special construction of super flexibility and toughness.

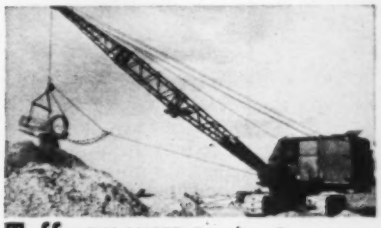
Tuffy BALANCED Scraper Rope

It's flexible enough to withstand sharp bends, yet stiff enough to resist looping and kinking when slack. Moves more yardage per foot because it's specially built and balanced to take the beating of drum-crushing abuse.



Tuffy BALANCED Dozer Rope

Built to give you longer service with less downtime. 150' reels of 1/2" or 9/16" mounted on your dozers allow you to cut off worn sections without wasting good rope. Put Tuffy Dozer Rope on the job and watch costs go down!



Tuffy BALANCED Dragline Rope

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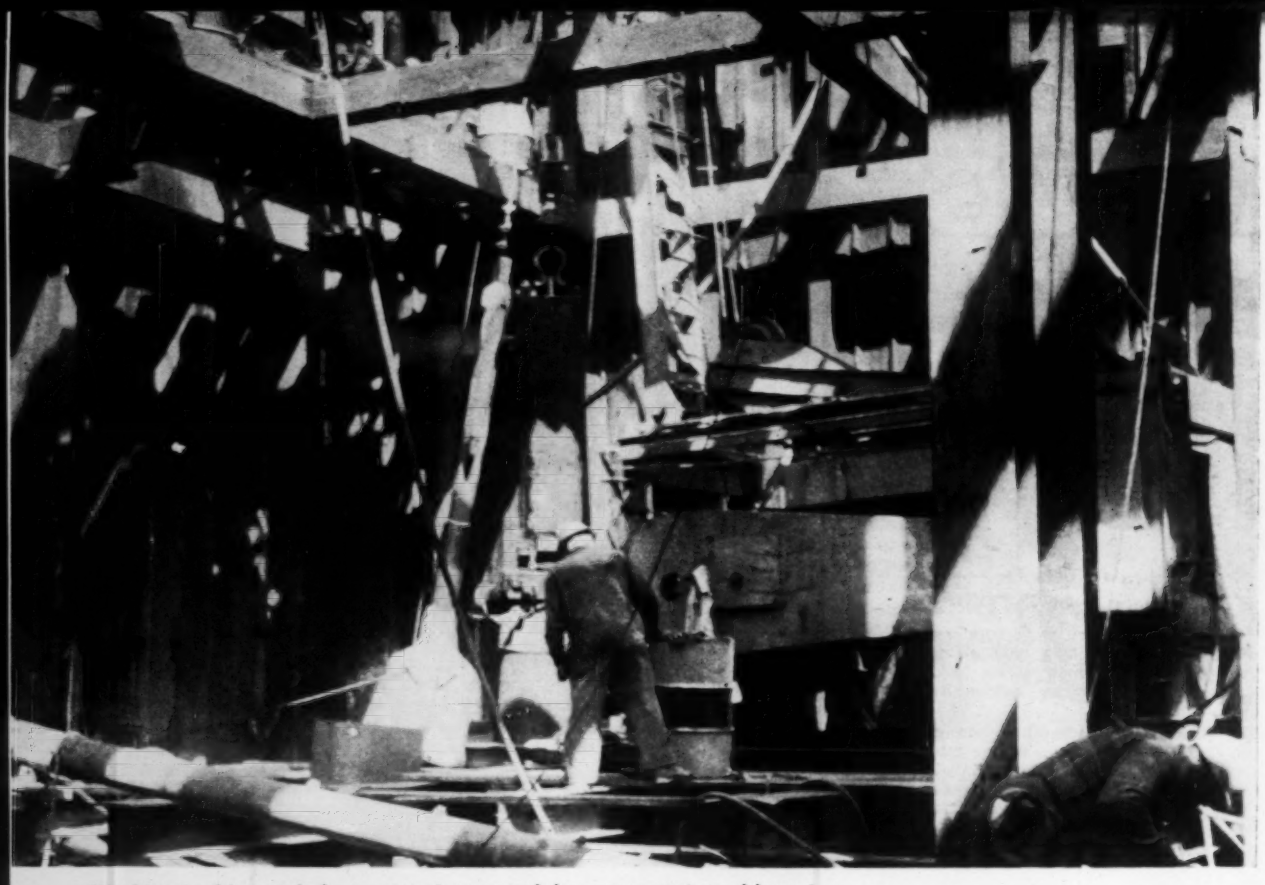


Working in this tangled mess was just one of the contractor's problems in . . .

Building a Foundation Through a

J. Harry Thornley
President
Western Foundation Corp.
New York City

When inspecting authorities condemned the footing for a main pier of what will be the world's longest vertical lift span bridge, the sub-structure general contractor faced a tough situation.

He had to install a suitable foundation in an area already occupied by a 24 ft thick, 3,800 cu yd mass of unusable concrete, seated 11 ft in rock, beneath 39 ft of water—all within a steel sheetpile cofferdam. Removal of this material proved impractical, but the foundation location could not be shifted.

• **The complications**—The problem was to install an acceptable foundation in and through the existing foundation without damaging any accepted components and without creating an interdependency between the two foundations.

These conditions, coupled with the need of handling horizontal live loads as well as vertical loads, called for a new approach to the foundation problem. The solution lay in the use of battered drilled-in caissons, steel encased through the existing concrete, socketed in the rock below and strengthened by the insertion of a heavy H section core.

The bridge where the trouble occurred is a 1,647 ft single-track structure being built over the tidal stream known as the Arthur Kill, between Elizabeth Port, N. J., and Arlington, Staten Island, New York City (ENR, Sept. 5, 1957, p. 36). It's owned by the Staten Island Rapid Transit Railroad Co., a subsidiary of the Baltimore and Ohio Railroad. The structure will have a 558 ft long vertical lift span that weighs over 2,000 tons and is expected to clear mean high water by 135 ft.

Trouble spot on the job is Pier 2, which supports the west tower of the lift span. It's the only one of the structure's 13 piers completely surrounded by water.

In designing this pier, the engineers, Parsons, Brinckerhoff, Hall and Macdonald of New York City, had to consider several unusual job-site conditions. Design considerations of these conditions complicated the task of correcting for the deficiencies of the initial foundation.

The 62x68 ft cofferdam required for the pier footing had to be placed in about 40 ft of tide water, on a rock bottom completely devoid of overburden. To stabilize the cofferdam sheeting during construction, the engineers designed it as part of the permanent fender system and integrated it with a series of rock-filled sheetpile cells placed in the form of a triangle at either end.

• **Troubled start**—Original specifications for the pier foundation called for placement of mass of tremie concrete 24 ft thick. At the request of the substructure general contractor, Charles F. Vachris, Inc., New York City, permission was granted by the owner and the engineer to place the footing concrete by means of the Intrusion Prepakt method—that is by placing stone within the cofferdam first, then pumping in grout to make concrete.

The grouting operation was completed with apparent success by mid-August, but tests started at the end

Closely spaced crossbracing in the cofferdam was a real obstacle to the caisson installation below.

Foundation

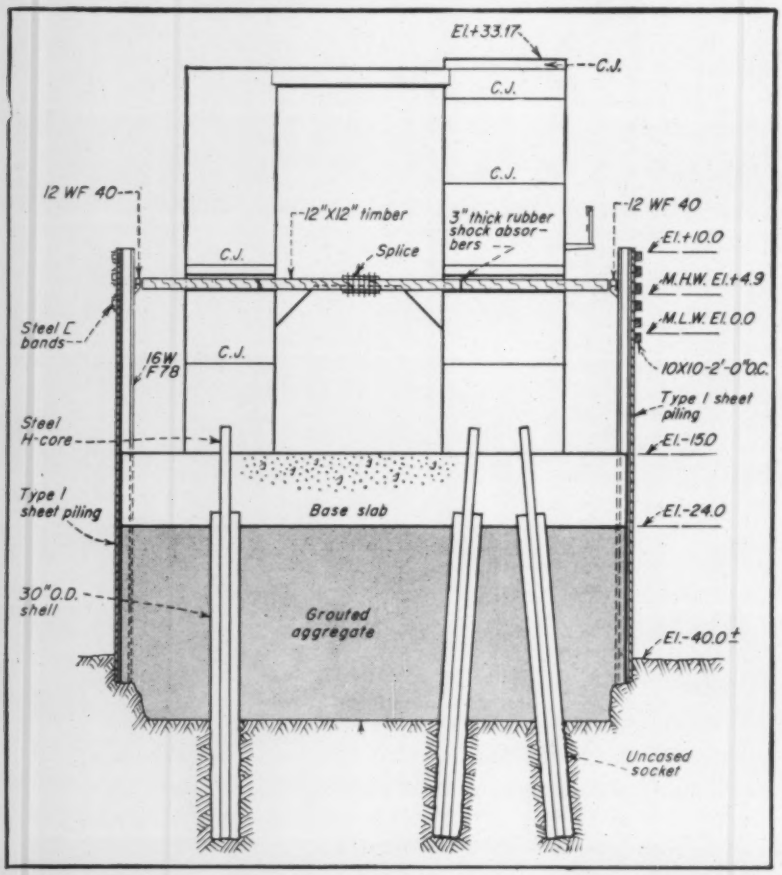
of the month indicated trouble. The 6 in. dia cores required by the specification could not be obtained. Some portions of the mass were apparently fully set, but others were not sufficiently bonded to permit recovery of samples for testing.

Then it was thought that a larger core might have enough cohesion to permit continuous sampling and that the samples would show some usable value in the concrete. Drilling for a large core was continued into October, but job site experience and tests performed on fragmentary cores led to the conclusion that the concrete had no uniform characteristics. Laboratory compression tests showed the strength of the material varied from as low as 336 psi to as much as 2,075 psi.

Because of these variations, it was decided that the existing concrete could not carry any structural loads. Since 3,000 psi concrete was called for by the specifications, it was decided to remove and replace the existing concrete.

But deciding on removal was one thing—getting it out without wrecking the cofferdam and partially choking the

WELDING SLEEVES between sections of caisson pipe was routine but time-consuming job. To expedite beading the 30 in. dia pipe, Western used two welders.



PIER DETAIL shows how all the forces exerted by the pier will be transmitted directly to the rock independently of the original foundation (shaded area).

channel was another. For 8½ weeks Vachris made a determined effort to get rid of the rejected material. But this did nothing more than open a centrally located pit about 24 ft square and 10 ft deep. The problems facing him seemed insuperable.

The material to be removed consisted of an irregular mass of partially set and poorly bonded concrete, containing lenses and pockets of fully-set concrete. The loose aggregate alone could have been removed with a clamshell or an orange peel bucket, but it was so intermixed with solid material that no headway could be made without blasting. And the near-ruin of a similar cofferdam on the same job (ENR Sept. 5, 1957, p. 42) showed that blasting the concrete contained by the sheeting might result in the almost total destruction of the cofferdam. Consequently, breaking up the unacceptable concrete turned out to be practically a hand operation.

There was a second obstacle to help close the gap between the "difficult" and the "impossible." Some group pipes had been left in place during the grouting operations. In the lower elevation of the footing, these pipes were set on 10 ft centers before the stone was placed. In the upper areas the pipes were placed in the stone on 5 ft centers. Many of them had not been removed, and those left acted as reinforcing and made concrete removal extremely difficult for the excavator (and later caused trouble for the driller).

• **The solution**—When the futility of trying to remove the existing concrete was acknowledged, Western Concrete Pile Co., of New York City, was called into the picture to help devise an entirely new foundation—one that could be installed through the existing concrete and still be completely independent of it.

A satisfactory answer to the problem was found through the efforts of all hands. They decided to drill 20 caissons, 30 in. in diameter through the existing concrete and into the rock below. Of these caissons, only 4 were to be vertical, 14 were to have a 1 on 8 batter, and the remaining 2 were to be installed on a 1 on 12 batter.

• **Working in a tangle**—Western's job was not easy. Within the cofferdam were two sets of bracing, and the bottom deck was only 22 ft above the top of the concrete. It consisted of longitudinal and transverse 12 in. 65 lb H beams, strutted at intermediate points by 12x12 timbers. The upper bracing, set 34 ft above the concrete, consisted solely of 12x12 timbers, checkerboarded both ways on about 15 ft centers. Within this tangle of wood and steel, Western had to place its equipment and materials and drill the caissons.

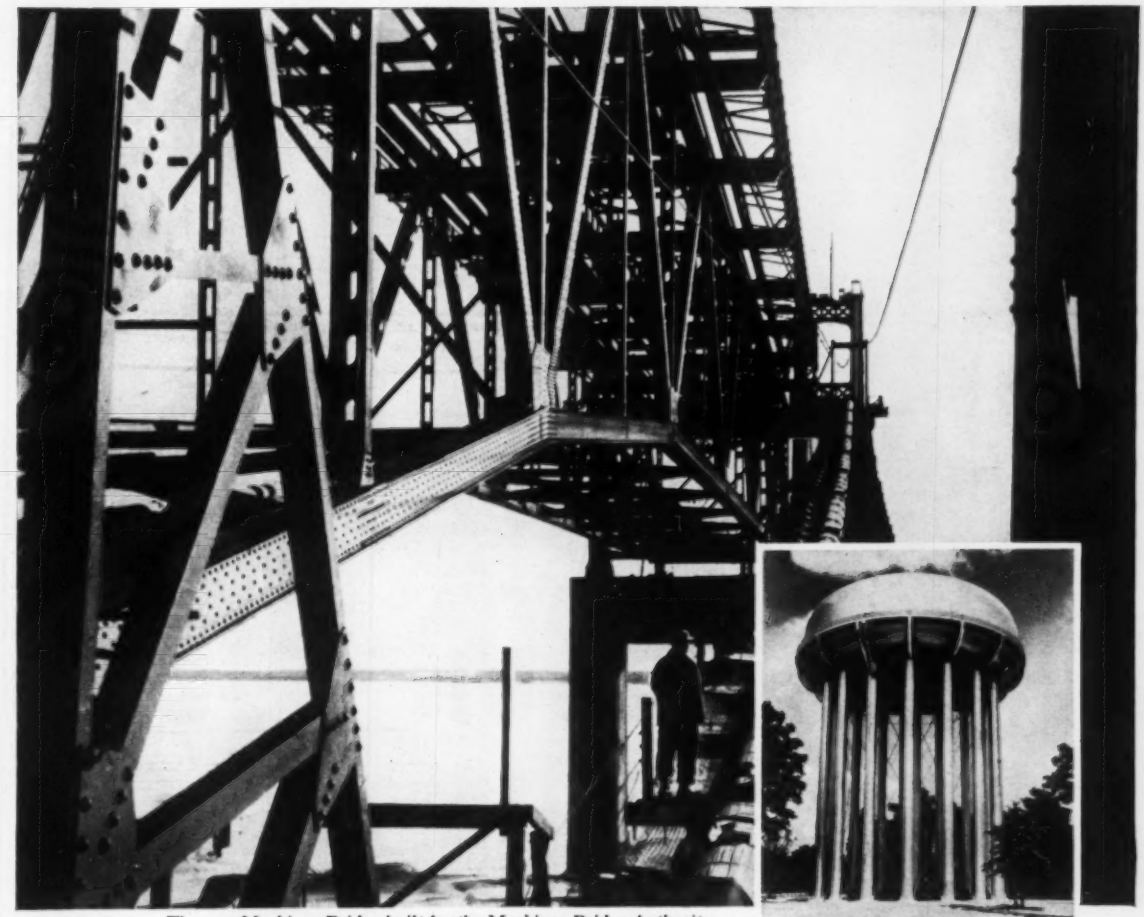
For drilling, a medium size churn drill was dismantled on the deck of a barge anchored adjacent to the cofferdam. Then the drill was lowered piecemeal to the mat below for reassembly. The 30 in. dia ½ in. wall pipe was delivered to the site in 40 ft lengths and cut on the site to the desired lengths. The 20 pieces used as bottom sections were 20 ft long and each was equipped with a 12 in. long drive shoe of 40-50 carbon steel tempered to meet the requirements of the rock.

With the drilling rig assembled, a shallow hole was cut in the concrete to receive the steel pipe and steady it during the initial stages of driving. A templet attached to the base frame of the drilling rig held the casing at the proper batter. A 2,300 lb star drill bit, 28½ in. in diameter, was then placed within the casing by the drilling rig. Under the repeated blows of the drill, the concrete broke up in and below the steel pipe. As each section of casing was installed, subsequent sections were added with the joints between sections both sleeved and welded.

A high head of water was constantly maintained in the pipe. This was particularly important during the cleaning operation, when the churned material was being removed by means of a novel "sand pump:"

The pump is basically a pipe closed at the bottom by a flap valve. A heavy, freely-moving piston within the pipe is attached to a lifting line. When the bucket drops to the top of the rubble, the piston falls to the bottom of the pump housing. Hoisting the lift line raises the piston rapidly and creates suction. The resulting pressure differential was so great and the water drawn into the pump so rapidly that 6 in. chunks of solid material were common in the spoil removed. A hole cut in the side of the pipe near the upper end of the pump makes it possible to empty the unit by merely laying it down.

The casing was driven with an air-activated, double-acting pile hammer, which had a rated energy of 8,750 ft lbs



The new Mackinac Bridge built for the Mackinac Bridge Authority will connect Michigan's upper and lower peninsulas with a modern, high-speed traffic artery. Red lead base primer paint was specified. Dr. D. B. Steinman—Consulting Engineer.

This new 2-million-gallon standpipe at Shreveport, La., is protected with red lead primer paints.

RED LEAD Helps Protect The World's Newest and Longest Suspension Bridge

Due for completion late this year, the five-mile-long Mackinac Bridge will be the world's longest suspension bridge, 8,614 feet from anchorage to anchorage. Its superstructure will be 19,203 feet long and contains 66,500 tons of steel, and every vital inch and ounce of it will be protected year after year by red lead base primer paints. For Mackinac as for other outstanding bridges and structures, red lead adds the assurance of durability to the structural manifestations of progress.

In the United States, all but one of the 48 state highway departments and most turnpike and bridge authorities have red lead primer specifications. This preference for red lead primers is based on the years of satisfactory service they have provided.

Modern research, too, makes it possible to formulate red lead primers to meet exacting requirements for almost any condition a structure might meet—drying time, cost, atmospheric, salt or fresh water exposure. Red lead primers have become a standard for the protection of structural steel on all kinds of buildings, bridges, water tanks, gas holders – wherever structural steel is exposed to corrosive conditions.

We will be glad to assist you with specific formulations to meet your particular requirements, whether for highway structures or steel installations of any kind. We have available a series of Red Lead Technical Letters that deal with specific problems involving the priming of structural steel. Technical Letter No. 12, for example, is concerned with painting highway steel structures. Write for it today – on your letterhead. 4273

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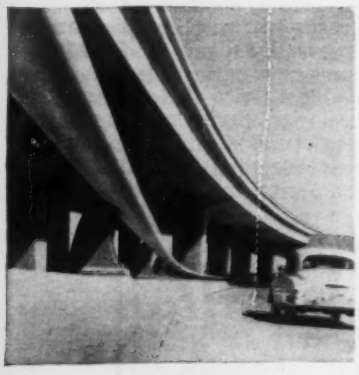
Your nearest Alcoa sales office has complete information on aluminum bridge structures, railings, highway signs, lighting standards, gratings, overhead sign structures, chain link fencing and other highway applications. Or write: Aluminum Company of America, 1974-H Alcoa Building, Pittsburgh 19, Pa.



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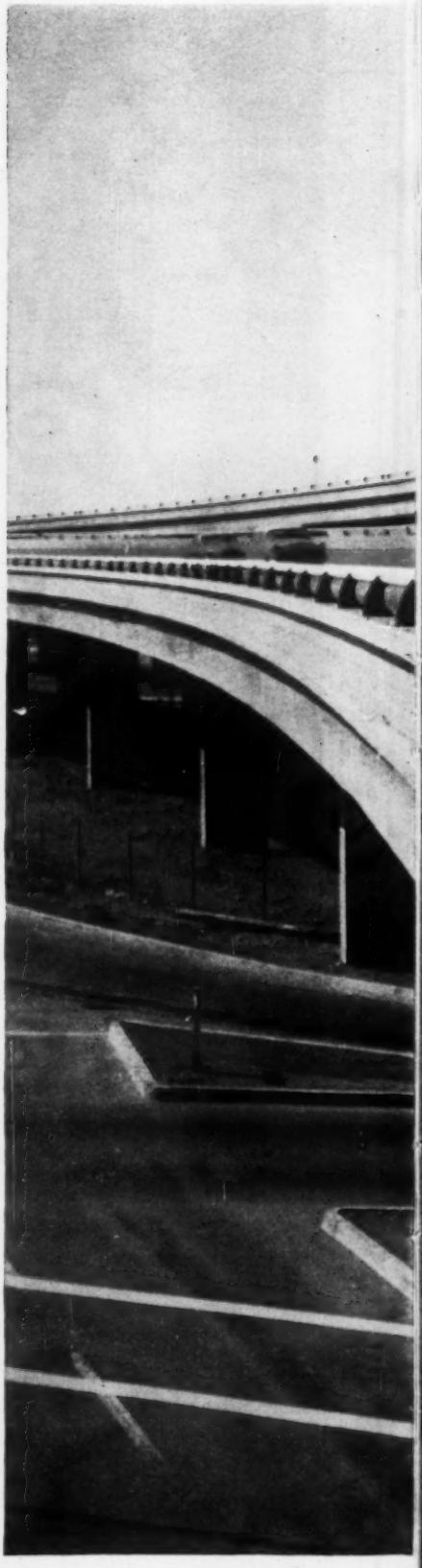
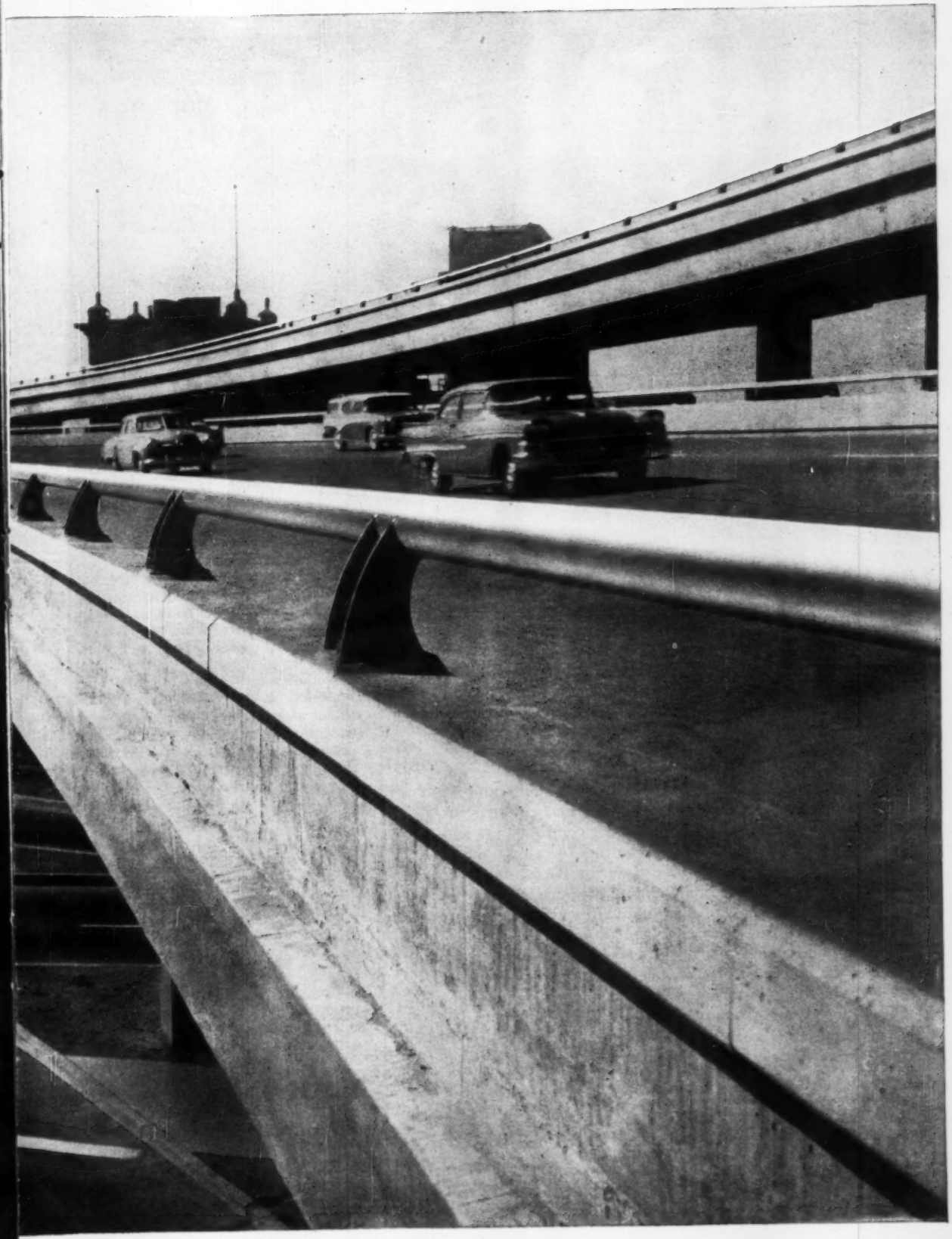
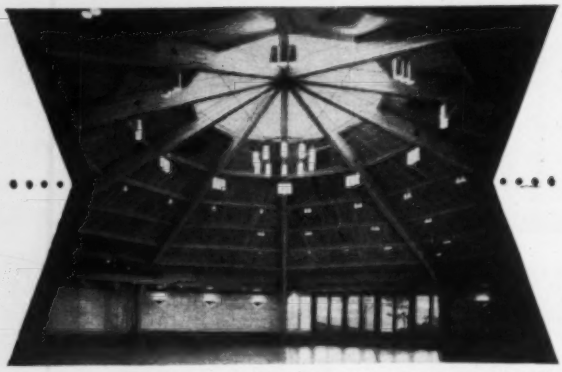




What are these ?

...and what do they have to do with this?



ARCHITECT: JAN H. POKORNEY, NEW YORK CITY

The vat-like machine above is a special refrigerated mixer into which exact amounts of powdered glue and liquid are placed, and a tooth-studded cylinder revolving at 2400 RPM beats out all lumps and air pockets. After setting for a closely timed interval, the glue is thoroughly mixed again, after which it is held at controlled temperature in an air-tight pressure container until used.

The other machine is a glue spreader which applies the glue evenly to both sides of each lamination. To make positive contact with the wood, glue is applied under controlled pressure, with the amount applied governed by moisture and temperature of the wood, relative humidity in the laminating room, and time in assembly before clamping pressure is completed.

These are only a few of the vital quality control measures at Timber Structures, Inc.

Proper lamination is like a well played symphony. Anyone can buy the music, but it takes talent, ability, equipment and an overwhelming desire for perfection to do it *right*. That is why, in specifying structural timbers, it is common for experienced engineers to insist upon Timber Structures quality. *We stand behind the performance of our products on your job.*

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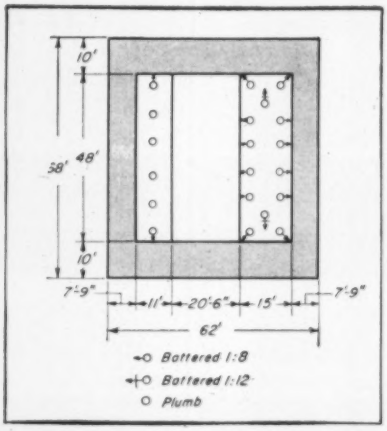
. . . Base is in rock



COFFERDAM plan shows caisson placement and direction and extent of batter.

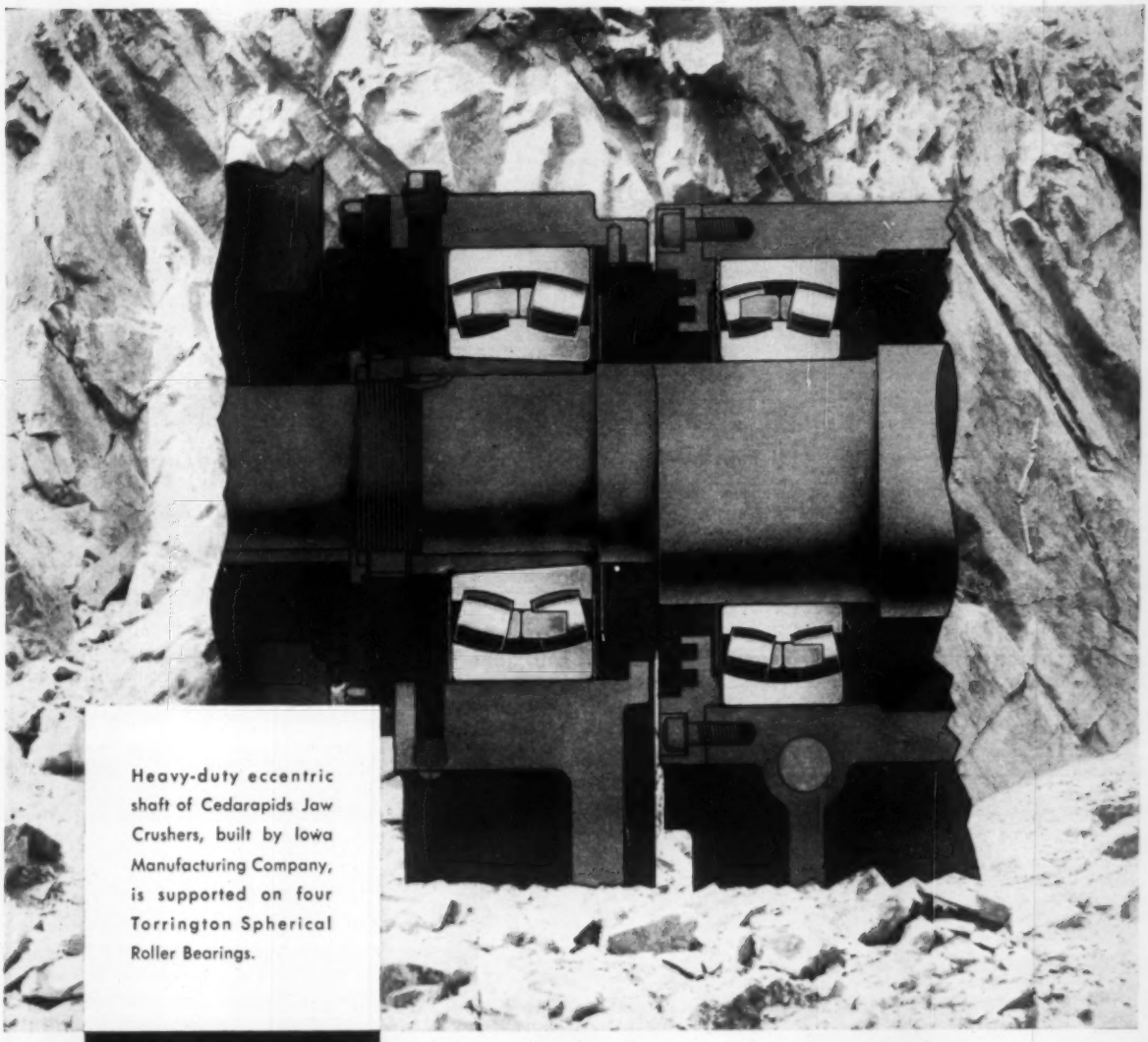
and was handled by a crane mounted on the barge beside the cofferdam.

When the hole was drilled through the concrete, the drive shoe of the pipe was driven into the rock below to achieve a seal against loose solid material. Churn drilling of the rock was continued to form a base socket for the caisson. For most of the holes, the sockets were carried to a depth of 10 ft below the cutting edge of the pipe, but the required depth was determined to some extent by the hardness of the rock, as shown by drilling progress.

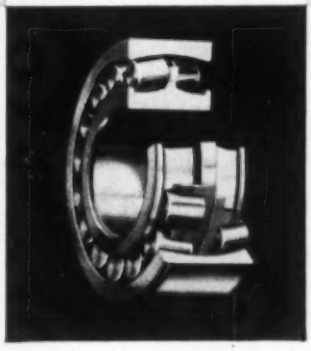
When the caissons had been cleaned, they were then washed thoroughly for 15 minutes with fresh water and then inspected in the wet. The uncased socket and the lower 3 ft of the pipe were then grouted (by tremie, when necessary). Next, a 14 in., 287 lb H section was lowered into each caisson and permitted to seat itself in the grout. Guides welded to the steel insured proper alignment with the casing. After the grout had set, the balance of the caisson shaft was concreted and the foundation job was finished.

When the pier is completed, the top of the H sections will be imbedded in the pier legs. Then, since the bases of these sections are in the uncased grout in the rock socket, the forces exerted by the completed pier will be transmitted directly to the rock, independently of the original foundation.

The caissons, including the patented batter caissons, were installed by Western in accordance with its standard procedures. Plans and specifications were provided by Parsons, Brinckerhoff, Hall & Macdonald, of New York City. The job is under the jurisdiction of the New York District of the Corps of Engineers. Col. Thomas Rogers is District Engineer, Lt. Col. Joseph R. McCammon is the area engineer, and Joseph G. Crowley is resident engineer.



Heavy-duty eccentric shaft of Cedarapids Jaw Crushers, built by Iowa Manufacturing Company, is supported on four Torrington Spherical Roller Bearings.



Designed for tough service

Cedarapids Jaw Crushers are designed throughout for tough, day-in, day-out service, right down to the bearings used on the eccentric shaft.

Torrington Spherical Roller Bearings are used because of their ability to align under load, rugged construction, stamina and stability. These bearings provide high radial and thrust capacity—more than enough to withstand the severest loads and shocks the jaw crushers can deliver in hard service.

Torrington Spherical Roller Bearings also are used in Cedarapids roll crushers, hammermills and impact breakers—and in many other construction equipment applications. For your toughest jobs, rely on Torrington Bearings and Torrington engineering experience. **The Torrington Company, South Bend 21, Ind. and Torrington, Conn.**

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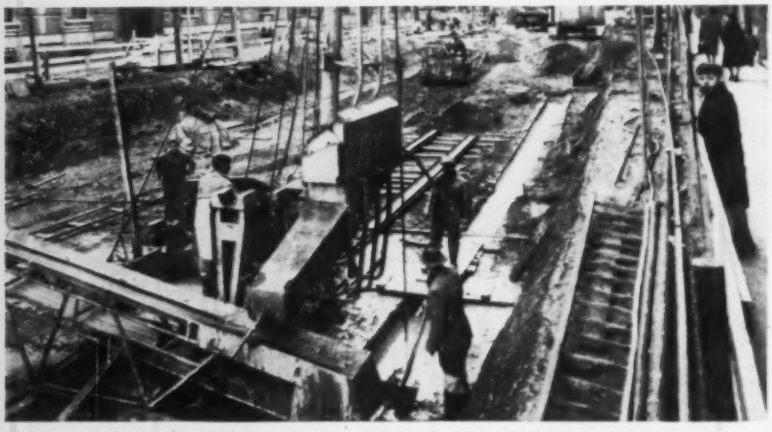
SPHERICAL ROLLER • TAPERED ROLLER • CYLINDRICAL ROLLER • NEEDLE • BALL • NEEDLE ROLLERS • THRUST

Airport Offices Go Up in a Hurry

Temporary offices totaling 11,400 sq ft were erected in just 12 hours for British European Airways at London Airport.

Two buildings needed were prefabricated. Erection started at 5 am, and by 5 pm the 232 ft and 216 ft units were complete with connecting corridor, heat, light, power and plumbing.

The temporary offices were made and erected by Terrapin, Ltd., London.



SHALLOW SUBWAY CUT in Milan is made possible by casting 27 ft deep concrete bulkheads in bentonite mud filled narrow trenches (right).

Bulkheads Cast in Mud-Filled Trenches

Where proximity of buildings permits only shallow excavations, a bentonite mud process is used to sink bulkheads for a new subway being built in Milan, Italy.

Putting in the walls of the 25 ft wide subway tunnel without disturbing the stability of flanking buildings goes as follows. First, a shallow street-wide excavation is made. Then, along one side of the street, 3 ft wide trench up to 27 ft deep and 30 ft long is dug and simultaneously filled with bentonite mud. Reinforcing steel is set in the mud-filled trench and concrete cast through a funnel, forcing the mud up and out of the trench. The process is repeated on the other side of the street, after which a cover is cast and the tunnel itself dug under cover.

Bentonite, a clay that expands greatly in the presence of water, here does two things in mud form. The heavy gelatin-like mixture keeps the trench and surrounding area stable by replacing the earth dug out; and it seals the sides of the trench into which the concrete is directly cast.

About 160 ft of the subway tunnel have been constructed using this method. Where there is no building stability problem, the more conventional dug-and-timbered cut is used.

Experimental Power Plant Run by Sea Wave Energy

A pilot plant using energy from ocean waves to produce electric power is to start operations early next year in Spain.

Floats set in guides rise and fall with movement of the waves. The floats are connected to rods that drive pistons in a cylinder. Water is sucked into the cylinders on the rising stroke. On the down stroke the water is pushed up to a tank. The water then is dropped through conventional turbines that drive generators.

The experimental plant is designed to produce 500 kw, utilizing 180 cfs of water. The new system is a patented invention of Rafael Reyes Falla, a chemist. The plant is located in Almetilla del Mar on the coast of Tarragora.

Montreal Filter Plant To Be Second Largest

Montreal has awarded a $2.4 million contract for construction of a sixth 60 mgd gallery of rapid sand filter beds at the city's Verdun water treatment plant.

Completion of the project will give the Verdun plant 360 mgd of capacity, second only to Chicago's 960 mgd central District Filtration Plant now under construction. Atlas Construction Co., Ltd., Montreal, is the contractor.

Big Low-level Sluice Gate Is Built For French Dam

A sluice gate that is claimed to be the largest low-level sluice in the world has been built by the West German firm of Dingler-Werke AG., Zweibruecken. It is 24 ft wide, 36 ft high and can resist a pressure of 9,000 tons.

The mammoth gate is one of two ordered by Electricite de France for a dam across the Durance River, where a new power plant, "Serre Poncon," is under construction. The two sluice gates will be installed 413 ft below the basin water level in two penstocks leading to the power plant. The gates are operated by oil hydraulic drives through 36 ft long steel cylinders.

Open rich, new Arizona resources

Push-loaded by two crawlers in tandem, 28-yd. B Fullpak gets good load of decomposed granite on Phoenix Basin highway job. Many blast boulders buried in pulverized material made loading and spreading difficult.

with modern highway built by 28-yd. Fullpaks®

Some 30 mi. northeast of Phoenix, Ariz., the firm of Wallace & Wallace Construction Company has converted an old dirt trail into a modern road. It connects Payson, Ariz., with Phoenix — opening the rich mining, logging, and recreation potential of this area to greater use.

On this 5¼-mi. section, a total of 300,000 cu. yds. of decomposed granite and rock had to be moved. Final surfacing, consisted of crushed stone and oil penetration.

Chose B Fullpaks for long hauls

Wallace & Wallace used a shovel and a fleet of trucks to open the deepest cuts. Pioneer leveling of high points on short hauls was done by 4 crawler-drawn scrapers. Two of these were LeTourneau-Westinghouse machines.

Once the start was made, the Phoenix firm handled the long-haul work with two B Tournapulls® with 28-yd. Fullpak scrapers. Progress was steady.

Initially, material was tough, and had to be broken by blasting or ripping. Even then, loading was often slow and difficult because decomposed granite didn't always break up fine enough for easy entry into scraper bowl. However, "B's" were regularly push-loaded with 20 to 22 yds. by a pair of crawler tractors, double-headed for maximum power in the cut. A typical cycle of 3300' took 9 min. to complete.

"Can move more with 'B' "

"This 'B' is good," said Operator Bob Kelton. "I've run them all and this is the best I've ever been on. It loads easier, has good visibility, and I've got a seat up out of the dust. I can move lots more with B Fullpak."

Find out how B Tournapull with Fullpak Scraper can add to your profits on big-yardage jobs. Ask for full specifications and a demonstration.

One of Wallace & Wallace B 'Pulls† starts 800' haul, on Payson-Phoenix roadbuilding job. Cycles included 10% adverse grades on return.

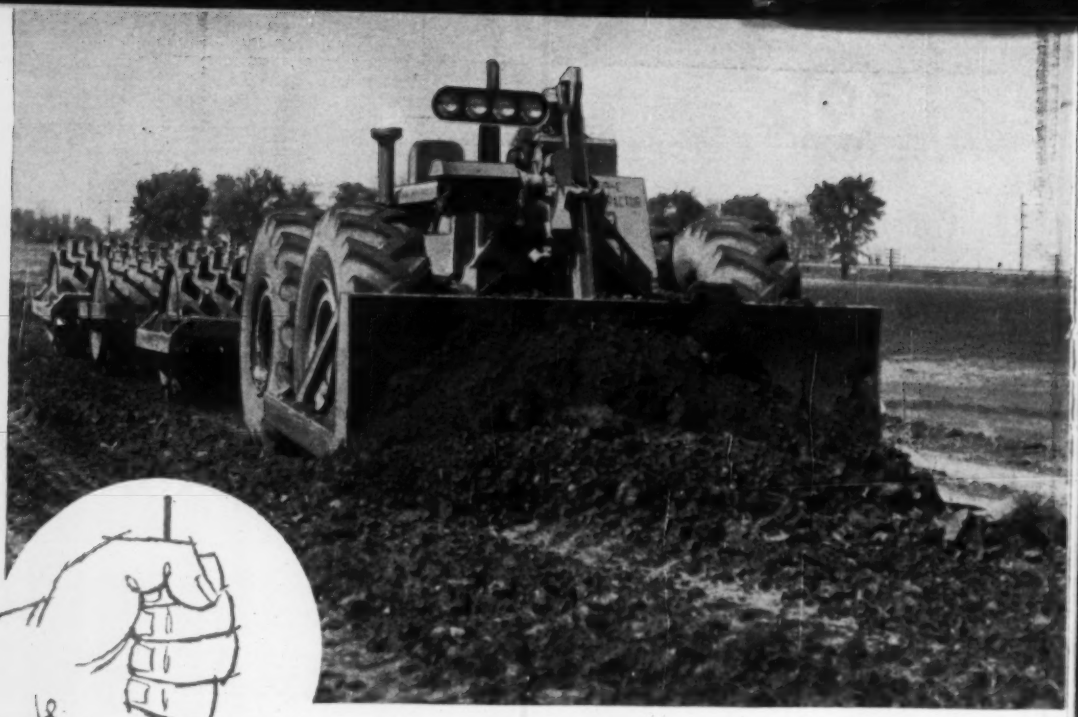
B Fullpak swings around in tight U-turn at end of spread, for return to cut. New road was carved through rocky, hilly Arizona country.

†Trademark BP-1527-DCI-1

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit



BALANCE your tractor fleet for extra profit...

When you plan dirtmoving contracts, you are usually faced with a wide variety of tractor assignments.

The question is: What kind of tractor — crawler-mounted or rubber-tired — will pay-off best in the work you're handling?

Repairs access road to isolated farm

Farmer's access road 5 miles down the pike is washed out. He can't get his pick-up out to the road, can't move his produce to market. Your Tournatractor is on the job in 20 minutes... repairs road in 20 minutes... is back on its regular job in another 20 minutes. You've saved money, made friends.

Hires out for plus profits

A property owner near your job wants land leveled for building site, or drainage. You "borrow" Tournatractor from production fleet ... send it over highways, through city streets to the work site. Whole job takes only a few hours. Tournatractor earns $75 or so extra pay ... without delaying the main job.

Balances production — cuts moving time

When your production fleet moves, self-propelled scrapers roll over highways to the new job. Tournatractor rolls with 'em. Scrapers can begin work on arrival, if a Tournatractor is used to push-load. (Crawler-pushers are usually latecomers since they must be loaded on flat-beds, hauled to job site, and ramp-unloaded.) When short hauls bunch-up your scrapers in the cut, again drive in Tournatractor. This tractor will quickly balance your pusher operation, until longer hauls get your production fleet back into efficient spacing.

Clears right-of-way for production earthmovers

While your heavy-duty crawlers grub out stumps or break up shale, there's plenty of rough work that a speedy tractor-on-rubber can handle . . . scattered work that will get your production haulers working sooner. Use a Tournatractor to pile logs, stumps, and brush, build and maintain haul roads, doze boulders, clear turn-around areas, connect access roads, cut drainage ditches to keep borrow pits and haul roads dry.

Big, 2-ft wide tires aid compaction

Material on fill is piling up fast. It needs continuous compaction or it will delay scraper cycles. Tournatractor levels high spots with its dozer blade, at the same time it pulls a 35-ton, 6-drum sheepsfoot roller. Tournatractor's 2' wide tires, carrying 20 tons of weight, combine prepacking with heavy 30 to 50-ton follow-up for most effective compaction.

For heavy, short-haul work? For scattered work?

For most heavy, short-haul work . . . for dozing in rock-filled earth . . . and for "stay put" work in limited areas . . . slow-moving crawler-tractors fill the bill, because they have more lugging power at slow speeds.

For work where travel range is important . . . for leveling scattered fill . . . towing "part-time" scrapers . . . cleaning up . . . maintaining haul and access roads . . . push-loading . . . finish-grading . . . and doing dozens of "chores" scattered over a wide work area . . . your best bet is today's improved 210-hp, 17-mph, rubber-tired LeTourneau-Westinghouse Tournatractor®.

Crawlers to "lug" . . . tires to "run"

To handle your work at lowest cost you'll want to team L-W Tournatractors and crawlers in proper balance . . . using crawlers to "lug" and Tournatractors to "run."

Of course, as every project varies, you can't work out an exact mathematical formula between crawlers and rubber tires. Start with rubber-tired tractors where you obviously need most of their speed and maneuverability. Then, extend your rubber-tired percentage as you find it profitable for your operation. Keep in mind, as you plan, the growing importance of mobility in today's bigger, large-area dirtmoving jobs.

Some contractors say a tractor fleet should be evenly balanced . . . half "track," half "rubber." Others find that one Tournatractor does the work of two crawlers on their particular operations, and plan accordingly.

We've pictured here, some typical circumstances where a work-and-run tractor-on-rubber helping on your contracts, will bring you maximum profit.

Quickly reconditions mucky haul roads

Your heavily-loaded scrapers cut deep ruts into wet haul roads . . . slow production cycles. Tournatractor, called from an assignment a mile away, can be regrading damaged haul road in 5 minutes. With quick forward and reverse passes, Tournatractor dozes in fill, levels surface, cuts a trench to improve drainage . . . puts production scrapers back on schedule. In fact, it's profitable on most jobs to have this quickly available unit patrol your heavily used haul roads several times a day.

Cuts emergency drainage ditch

Rain forecast for tonight . . . could easily flood poorly-drained cut in spongy clay . . . could side-line your production fleet for days. In 10 minutes, speedy Tournatractor drives 2 miles . . . soon digs drainage ditch, then smooths cut and haul roads to eliminate water pockets. No production delay today! And, come heavy rains tonight, the dirt will still roll on schedule tomorrow!

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Spray deep penetrating, colorless Thompson's Water Seal on fresh concrete to cure and seal in one operation. Save time . . . save labor.

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Helps reduce checking, cracking, spalling.

Produces harder, dust-free surface.

Eliminates waterproofing concrete floors.

Permits adequate time for smooth troweling.

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A proved bond breaker for pre-cast, tilt up and lift slab construction. Permits easy, clean separation of slabs, walls, pre-cast members.

Available in 5 and 55 gallon drums from building supply stores, paint and hardware dealers.

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Epoxy Resin Tried as Cover for Tile Dividers

A test section of the San Francisco-Oakland Bay Bridge was recently sprayed with Shell Chemical Co's new epoxy resin safety pavement to see if it will satisfactorily cover ceramic tile dividing strips.

The project involves converting the upper deck to one-way traffic and widening the lanes by reducing the number from six to five. The tile dividers must be either covered or removed and filled. The existing dividers are 4x4 in. tiles, about $\frac{3}{8}$ in. thick, spaced at 4 in. intervals. They are imbedded in concrete and protrude $\frac{1}{8}$ in. above the surface.

At the demonstration, arranged by the California State Toll Bridge Authority and the Division of San Francisco Bay Toll Crossings, short strips near the Yerba Buena tunnel were coated with the plastic adhesive, called Guardkote Paving Resin. It was sprayed on the deck and covered with grit as it began to harden. Two types of grit were tried—ground emery and ground granite.

Shell representatives claim only light applications are needed. If this claim is proved by test, the bridge engineers say they would rather use the resin than an asphalt topping, which they say would create a weight problem. As an added advantage, says the company, the material is skid-resistant, even when wet, durable under traffic and resistant to chemical action.

Thomas G. Nock, who heads the project for the chemical company, reports there are some 15 test strips of Guardkote on highways and bridges in various sections of the country, including the New Jersey Turnpike, the Wilbur Cross Parkway and the Triboro Bridge in New York City. Up to now the test strips have been principally at toll booths, grades and curves.

Meter Measures Odors

Air pollution consultant devises an aid to design

The recent development of an odor-measuring instrument now makes it possible to analyze industrial and commercial odor problems quantitatively and to design odor-control measures on an engineering basis. So says Hemeon Associates of Pittsburgh, the air pollution consulting firm that devised the meter.

The device mixes odor-laden air with purified air and supplies the resulting air stream continuously to helmets worn by human subjects. The humans vote on the intensity of odors in a systematic series of mixtures, while the meter also provides data. These, combined, are translated into numerical quantities that describe concentration and quantity of odor emanating from a particular source.

While simple in principle, there are many experimental pitfalls in its operation, and operation only by experienced personnel is indicated. Some of the problems are concerned with olfactory fatigue, variation of perception between subjects and variation in sensitivity of the same subject.

Wesley C. Hemeon, director of the research firm, states that there is no in- that describe concentration and quantity of odor emanating from a particular ing special skill and experience.

Lower the Ceiling For Cooler Housing

In hot climates, lower ceiling heights will make house interiors cooler, in addition to lowering construction costs. That's a report of the Building Research Station of the Technion, the Israel Institute of Technology, Tel Aviv. A ceiling height of 8 ft 4 in. would not affect either health or comfort of the inhabitants, the report states.

After comparing various ceiling heights, researchers found that ground-floor apartments with lower ceilings were cooler than those with higher ceilings. In upper-floor apartments of houses with whitewashed flat roofs, temperature differences of up to 41 F were observed between the low and high ceilings, mostly in favor of the lower. With pitched roofs, however, higher rooms were slightly cooler.

The research team was headed by Professor Rahiel Shalon, in cooperation with the Technion station for Technical Climatology.

RB&W High Tensile Bolts . . .

Bolting is just beginning to replace rivets in fabrication work. Here, work that would ordinarily be done in the shop is bolted on the ground at the job site in the erection of an industrial plant.

cut shop assembly costs with field-proved economy

Engineers and architects now know first-hand the two major advantages of high strength bolts: connections are stronger and permanently tight under all types of loads. Steel in-place costs are less.

But are you overlooking advantages of high strength bolts when it comes to sub-assemblies and shop fabricated members?

Of course, simple members with repetitive, close-together holes favor the use of existing riveting machines. With complex and unwieldy members, it's another story. Ironwork can be pulled together and joined with fewer manhours. One fabricator, for example, saved 22% in manhours and 9% on overall costs by bolting 68-ft. long pitched roof trusses that stood 14 ft. high at midpoint.

In any case, just as it does in erection, the high strength bolts will make shop fabricated joints stronger and permanently tight despite vibration and dynamic loads.

Investigate the advantages of specifying a combination of RB&W high strength bolts and rivets for *fabricated* steel . . . and be sure to specify RB&W bolts for *erected* steel. They are easy to install expertly, conform fully to ASTM specification A325, are approved for their consistent high quality.

Send for this Bulletin on high strength bolts. Write Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, N.Y.

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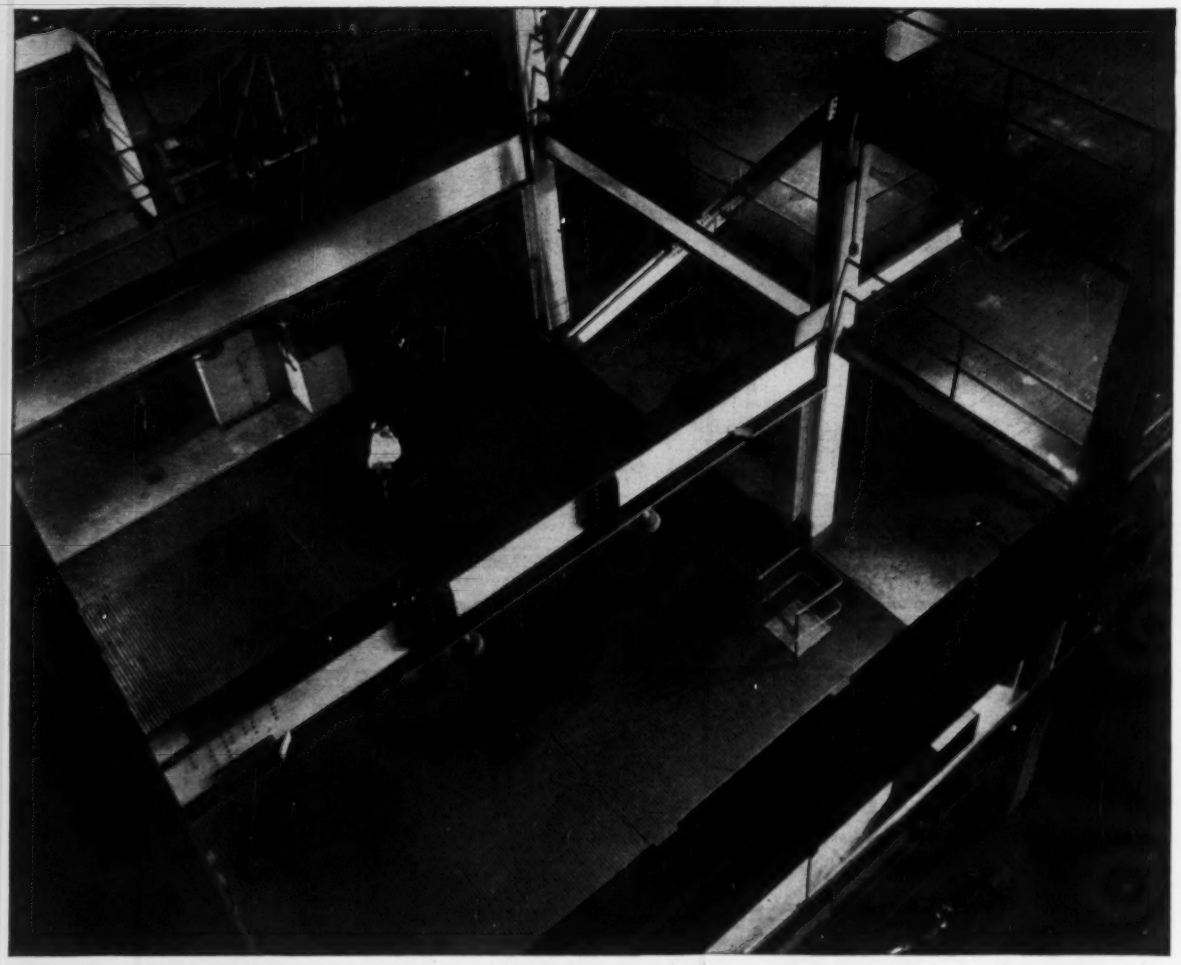

Blaw-Knox Electroforged® Steel Grating provides removable floors to simplify plant operation

Floors and mezzanines made of Blaw-Knox grating solve the problem of reaching, moving and servicing the largest types of equipment. Sections come up easily, allowing ample space to maneuver and maintain any size of machinery. Costly, time-consuming alterations are virtually eliminated.

For increased plant safety Blaw-Knox Electroforged Steel Grating provides rigid one-piece construction for sure support of the heavy loads. Non-slip cross bars and a wide variety of bearing bars assure safe walking and climbing — even under the most hazardous working conditions.

Because there's nothing to wear, or patch, nothing to catch and retain dirt, upkeep becomes easy and economical. And grating's maximum open area admits more air and light, makes brighter, better-ventilated plants.

Blaw-Knox Electroforged Steel Grating for walkways, stair treads and floors is fabricated to meet your specific operating needs. For new ideas about a complete line of space saving grating, write for Bulletin 2527 featuring grating and treads.

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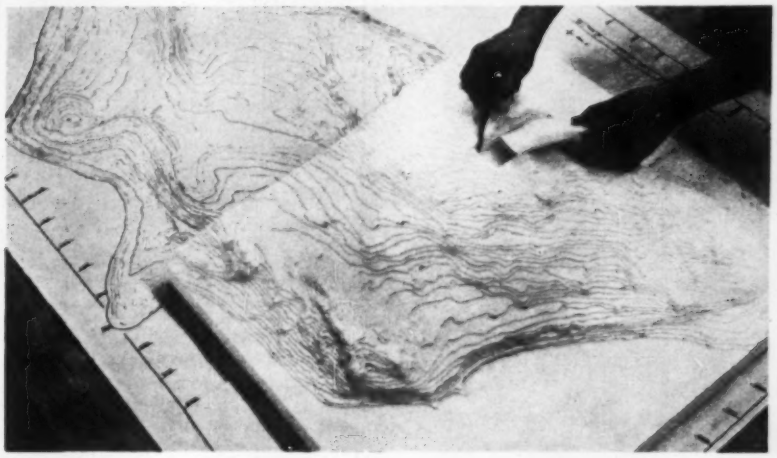
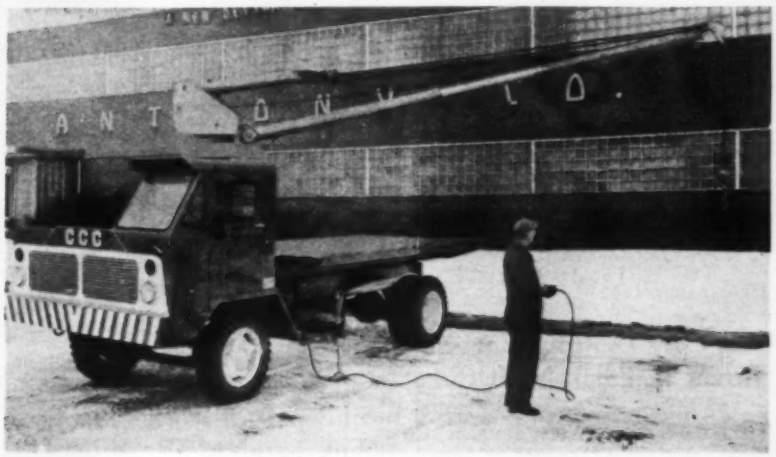


Easily cut foam plastic for . . .

3-D Construction Models

Lightweight foam plastic maps that can be easily cut with a knife now are available for topographical, plant-site and geological model construction.

This means that excavations and tunnels, for instance, may be studied in three dimensional form, with excavation being estimated by volumetric displacement or by weighing material cut from the model. INDUSTRIAL MODELS, INC., 2311 SCONSET ROAD, WILMINGTON 3, DEL.



Operator Can Steady Load While Lifting

A remote-controlled truck crane enables a single operator to direct the crane at the point of use with precision.

The remote control system is operated by heavy duty double solenoids. It allows the operator to steady the load at the same time he is operating the controls—a feature especially useful for long or bulky material.

The crane can lift 5,000 lb and fits in an 18 in. mounting space, with the boom swinging 280 deg. Maximum clearance for heavy loads is provided by the high pivot point of the boom over the truck bed. A hydraulic pump operates the crane, being driven from a power takeoff on the truck's transmission. The crane can be easily mounted on any truck by bolting it directly to the chassis. ANTHONY CO., STREATOR, ILL.

(*New Products continued p. 56*)

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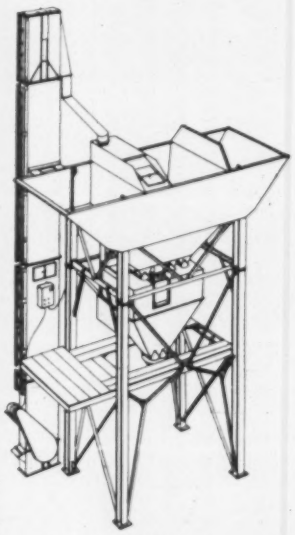


Portable Transit-Mix Plant Shipped in Parts by Truck

A portable transit-mix plant, standardized for quick delivery, is now in production. Quickly disassembled into 9 ft maximum-width sections, the plant, called "Roustabout," can be moved by truck from job to job. It is reported that field assembly is fast and easy.

The plant has three aggregate bins with a total heaped capacity of 38 cu yd and one 60 bbl cement compartment. Low height and wide tops make the bins easy to load by clamshell crane. The 180 bbl per hour cement elevator is run by a 3 hp motor with roller chain drive. A boot hopper handles either bagged or bulk cement.

A manually-operated concentric batcher weighs cement and aggregates on separate scales for compliance with rigid specifications. C. S. Johnson Co., Champaign, Ill.

Fast Core Drilling Machine Moves as Easily as It Cuts

The Model V Mole can make holes up to 14 in. in diameter through reinforced concrete at the rate of 4 in. per minute, according to the manufacturer.

It is a diamond bit drilling machine, equipped with a 14 hp gasoline engine, 12 volt generator, starter, clutch and governor—all mounted on a steel base. The compact assembly can be mounted on the back of a truck for easy moving between jobs and quick operation directly from the truck on site.

The machine uses a two-speed drill-bit-feed mechanism and has a water pump and water swivel. Molco Drilling Machines, Inc., 1100 20th St. N. W., Washington, D. C.

Flood Lighting Unit Generates Own Power

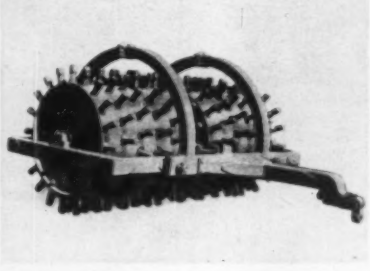
A mobile trailer flood lighting unit that generates its own electric power has been introduced. Called the Mobilite, the unit is available with 320,000 or 480,000 candle power. Four floodlights can be adjusted individually on a full circle to any height up to 18 ft. Pacific Mercury, 14052 Burbank Blvd., Van Nuys, Calif.

Photoconductive Cell Is A Light Turn-On Switch

A light-sensitive cell, known as the RCA photoconductive cell (RCA-7163), detects the coming of dusk and dawn and automatically turns street lights on and off.

The cell resembles a small bottle cap on top of a base slightly larger than a half dollar. Directly beneath a glass window are tiny metallic strips surrounded by a light sensitive surface made from cadmium sulfide. These strips carry current from the light-sensitive material.

The cells have such an extremely high sensitivity to light that they operate without a booster amplifier. Furthermore, say company spokesmen, the cell can operate under high humidity conditions. Radio Corporation of America, 30 Rockefeller Plaza, New York 20, N. Y.



Sheepsfoot Roller Made For Tandem Use With D9

A heavy-duty sheepsfoot roller designed specifically for tandem use behind Caterpillar D9 tractors or equivalent machines is the new Southwest Model 55 arch-type.

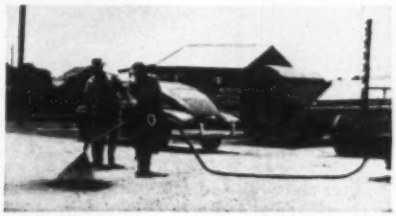
The reinforced arch frame is said to allow more accurate control in tandem applications.

The model is available in two designs, one with removable shoes, the other with wedge-type solid feet. Southwest Welding & Manufacturing Co., Construction Machinery Div., Alhambra, Calif.

PERMANENT PAVEMENT PATCHING
—HOT OR COLD—IN ANY SEASON

Summer patching: Cold mix direct from stockpile

Winter patching: Hot mix prepared on the job



General patching: Spray attachment from any tar kettle

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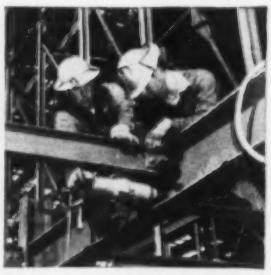
That's just one of many benefits of high-strength bolting as compared with riveting. Others:



Fewer men can install more bolts. Two men with little training can install about 400 bolts per day. Compare that with 300 to 350 rivets for the average four-man riveting crew. Net costs: leading erectors say 50c per bolt as compared with 80c per rivet.

Bolted joints stay permanently tight, even under severe vibrational loads. Rivets don't. With bolts, framing is completed weeks sooner on the average structure. Bolting is easier and safer work. And quieter.

These are some of the reasons why nearly all new major structures in some of our large cities are high strength bolted. High-strength bolts are one of many products made better by Sheffield special steels. Get all the facts from your nearest Sheffield office.

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Ellis Armstrong says he's had "considerable dam highway experience."

Dam Man Takes High BPR Post

Ellis L. Armstrong, 44-year-old State Roads Director in Utah, who last week was named commissioner of the U. S. Bureau of Public Roads, is a transplant from the water resources field. Dams were his business for 20 years with the Bureau of Reclamation and during a recent stint with consultant Uhl, Hall & Rich on the St. Lawrence Power Project.

It was his one-time civil engineering professor, now Utah's Gov. George D. Clyde (ENR Jan. 10, 1957, p. 66), who brought him home to his native state in 1957 and put him into the highway field at the state's highest level.

Mr. Armstrong observes he had "considerable dam highway experience" prior to his appointment in Utah—roads around dams, that is. But what Mr. Armstrong may lack in experience as a roadbuilder is made up by his talents for administration and organization, according to those close to him.

In Washington, back in federal service again, Ellis Armstrong will have as his immediate superior the federal highway administrator, Bertram D. Tallamy. The two became acquainted in New York when Mr. Tallamy was State Thruway boss and Mr. Armstrong was helping to get the St. Lawrence project started. Both the Thruway Authority and the Power Authority used services of the state Public Works Department. Bertram Tallamy had opportunity to watch Ellis Armstrong at work in the difficult, formative stages of the vast hydro project. It was a formidable organization job in which he took vital part.

• **From deep roots in Utah**—The Utah highway director will get a $3,500 raise in moving to the $17,500 BPR commissioner's post. Yet, the decision to move was not easy. Since last spring he has been back in his native state. He and his wife (and their six children) have real roots there. It's the land of their forefathers; both are Mormons.

Of course, the challenge in the BPR post is a considerable one. Among other forces impelling Ellis Armstrong to Washington was his previous 20 year investment (toward retirement) in federal civil service. Finally, the federal post will be less sensitive to politics than the state highway job he has held.

Born on May 30, 1914, Ellis Armstrong was a farm boy in southwestern Utah. He went to Utah State at Logan, earned his civil engineering degree in 1936 and went right with USBR in Salt Lake City.

• **USBR veteran**—For 20 years he had increasing responsibilities in design and construction supervision with the bureau (dam highways as well as dams). His real rise followed completion of an assignment on Anderson Ranch Dam in Idaho during the 40's. He had a significant part in design of this structure, still the highest of earthfills. His next assignment was in the USBR's head office in Denver where he had responsible charge over design of some 30 major projects for the bureau.

Mr. Armstrong says his was the seldom realized opportunity of an engineer to direct both design and construction on one project. On the Republican River dam at Trenton, Neb., he saw design through to completion, then moved out to supervise construction.

With Trenton Dam completed in 1953, Mr. Armstrong went to Cairo, Egypt, where he was a member of an American team participating in planning a big canal and irrigation plan, as well as doing basic work on the still stymied Aswan Dam. There he was witness to the miserable living conditions of most of the population of Egypt. He came back very much an advocate of foreign aid—in terms of engineering, health and other services including financial advice—but he is convinced that there just aren't enough paper dollars in the U. S. Treasury to pay for all needed projects in underdeveloped countries abroad.

Ellis Armstrong's idea is that people of backward nations can and should be taught to work together in progress toward higher living standards. What he suggests is the kind of cooperation within the framework of religion that is a way of life of the Mormons. Such philosophical expressions come naturally to him.

• **Pulling a switch**—Following his work in Egypt, Ellis Armstrong returned to the States where he was scheduled to be named head of USBR's Kansas office. But instead, he ended up with Uhl,

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ADMINISTRATOR ARMSTRONG—Ability to organize is said to be his forte.

Hall & Rich, design engineers on the great St. Lawrence Power Project (ENR Aug. 7, p.66). He was an assistant project manager in the field at Massena, N. Y., for 3½ years. He feels that project was a marvel of cooperation among the four agencies (of two countries) and the scores of contractors involved.

He returned to Utah last year at the request of his beloved teacher, engineer George Clyde. In his short period with the Utah Roads Commission pay standards have been raised in the highway department, although he admits that pay still lags. The state's program for highway construction increased from $8.7 million in 1956 to $20 million in 1957; $40 million is projected for this year, with $20 million in contracts already let.

Ellis Armstrong speaks with sincerity and enthusiasm about the "challenge" in Washington. As a federal administrator and engineer in the USBR program he has seen the side of the "big bureaucracy."

As a state administrator, he also has seen the problems of the state as they sink or float in a sea of local interests.

The job of being commissioner of the nation's public road system in the period of its greatest expansion is seen by him as a basic problem of getting state and federal interests in harmony and compromise. He takes on the task with vim and vigor—and as void of worries as any man can be.

Howard Jacoby Goes From ENR to Photronix

Howard Jacoby, senior editor in the field of water resources on ENGINEERING NEWS-RECORD's staff, has resigned to accept a position with Photronix, Inc., Columbus, Ohio, specialists in the application of electronic computations to engineering design.

Joining the McGraw-Hill International Corp. upon graduating from Rensselaer Polytechnic Institute in 1950, Mr. Jacoby was managing editor of the Spanish-language Ingenieria Internacional Construccion before coming to the staff of ENR in 1952. Subsequently he spent three years with the Navy's Civil Engineer Corps as an assistant public works officer on airbases in Florida and Texas, returning to ENR in 1955.

Careers

Public Works

Col. Edmund H. Lang, district engineer, U. S. Lake Survey, Detroit, has been named director of the U. S. Waterways Experiment Station at Vicksburg, Miss., succeeding **Col. A. P. Rollins, Jr.**

Henry G. Hayward, civilian engineer for the Corps of Engineers' North Atlantic Division, has been named chairman of the Corps' Hopper Dredge Board.

C. E. Harness has been appointed city engineer of Denver, Colo.

George Matkin has resigned as city engineer of Anchorage, Alaska, to resume private practice in Idaho.

Captain Joseph E. Rehler has been appointed district public works officer for the Ninth Naval District at Great Lakes, Ill.

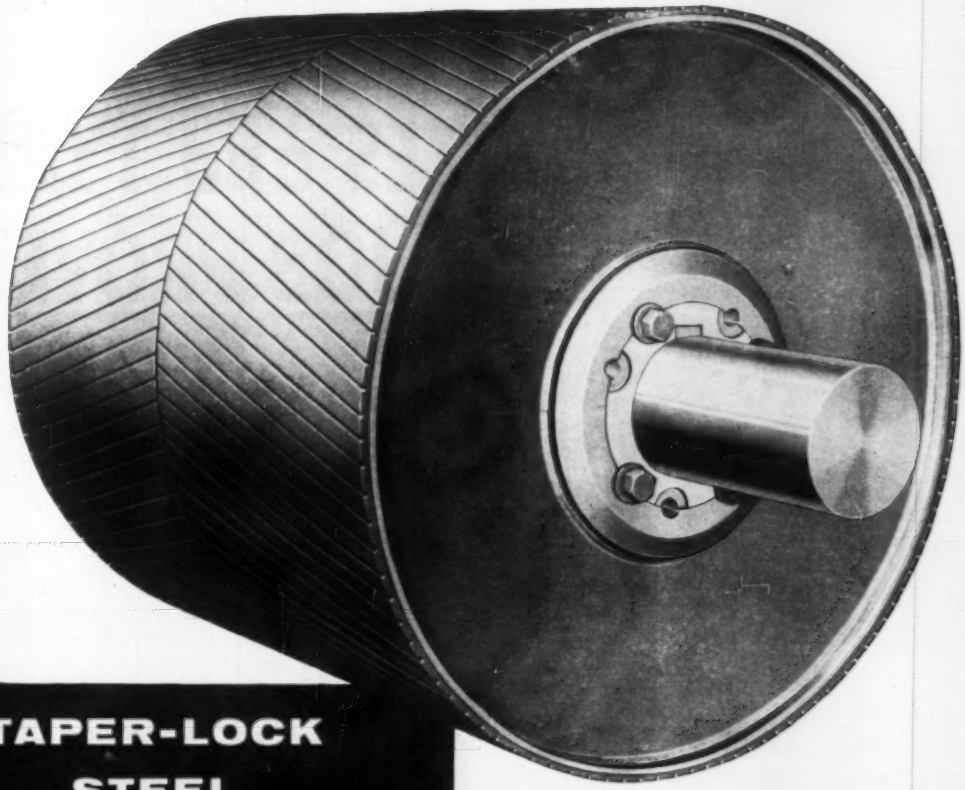
Harold E. Miller has been appointed director of the Washington State Pollution Control Commission.

Thomas J. O'Hara, Jr., McNeil Construction Co. executive, is named vice president of the Los Angeles construction firm, assuming new responsibilities in staff administration. He joined McNeil in 1955, and has been serving as manager of operations.

Col. Delbert D. Freeman (U.S.A. Ret.), who was recently chief of the U. S. Army Mission of Bolivia, has joined Fruin-Colnon Contracting Co., St. Louis, as vice president in charge of foreign operations. The company, at present engaged in engineering and construction work in the United States and Canada, is expanding activities into the international field.

Col. W. C. Gribble, Jr., is new Alaska District Engineer for the Corps of Engineers, succeeding **Col. P. V. Kieffer, Jr.,** who has been assigned to the Secretary of Defense office in Washington, D. C.

Russell E. Teague, health commissioner of Kentucky, has assumed the chairmanship of the Ohio River Valley Water Sanitation Commission. He succeeds **Blucher A. Poole,** chief engineer of the Indiana State Health Department, in directing the eight-state water pollution control agency.



TAPER-LOCK STEEL CONVEYOR PULLEYS

Maximum strength with minimum weight...
Unmatched holding power on the shaft...
New mounting simplicity.

The rims, discs and hubs of these modern conveyor pulleys are *steel*—and they are fused together into jointless drum construction for (1) maximum strength with minimum weight, (2) exclusion of dirt, water, steam, (3) terrific shock resistance.

With the patented Dodge Back-up Bar, welds of full rim thickness are achieved—and the ultimate in strength is assured by submerged arc process welds.

Taper-Lock Steel Conveyor Pulleys *hold*. Taper-Lock provides the equivalent of a shrunk-on fit—there is no "walking" on the shaft. Mounting and demounting are simple. Pulley and bushings mount as a unit. Alignment is easy. And the tapered bushing is wedged into place merely by turning the mounting screws. It is "unlocked" by using the mounting screws as jack screws.

Available in diameters from 6 inches to 8 feet—all face widths. Standard or special rubber lagging available. Ask your local Dodge Distributor—or write us for bulletin.

DODGE MANUFACTURING CORPORATION, 6900 Union, Mishawaka, Ind.

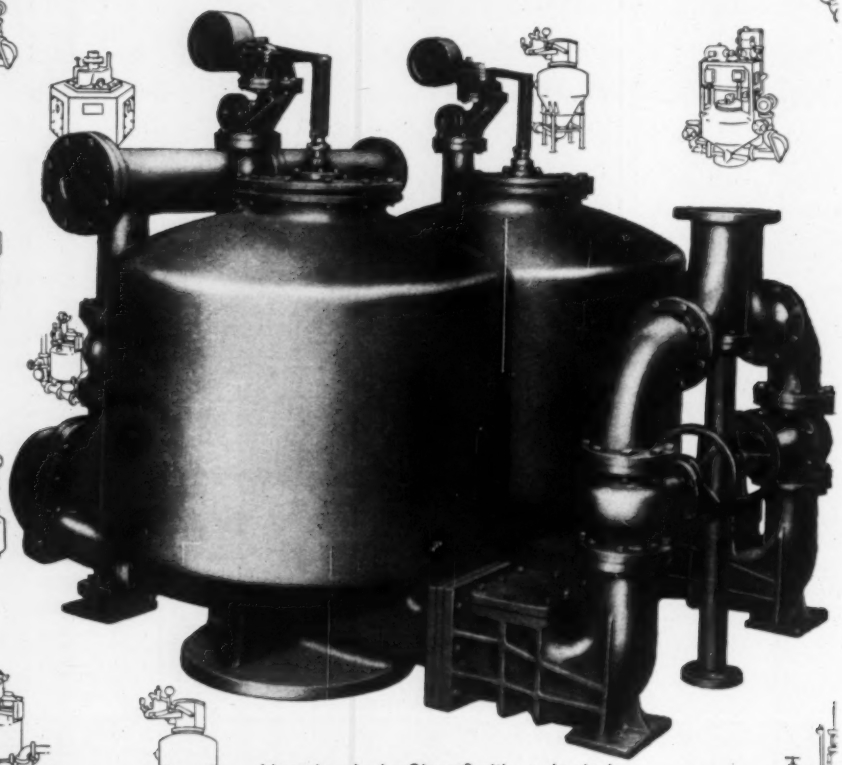
97 Taper-Lock Steel Conveyor Pulleys are used in this famous conveyor system engineered, manufactured and erected by Hewitt-Robins, Inc., at the Southern Pacific's causeway construction across the Great Salt Lake.

DODGE
of Mishawaka, Ind.

CALL THE TRANSMISSIONEER—your local Dodge Distributor. Factory trained, he can give you valuable help on new, cost-saving methods. Look in the *white* pages of your telephone directory for "Dodge Transmissioneer."

there are **NO "GUINEA PIGS"** *among Yeomans Pneumatic Ejectors*

all 212 SIZES and TYPES are JOB PROVED!



Above is a duplex Shone® with mechanical controls—the original pneumatic ejector. The first Shone was installed in 1870. Other Yeomans pneumatic ejectors are: Expelsor®, Packex®, Pneu-Pump, Transporter, and SS Screenings Unit.

There's no risk involved when you specify a Yeomans pneumatic ejector. Chances are your client already knows that it's the most dependable unit he can get . . . and you are able to show him why. Yeomans pneumatic ejectors have exclusive features that can mean the difference between a troublesome 10-year life, and a 25 to 50-year span which is almost maintenance free. In the Yeomans line, also, you can give your client the exact pneumatic ejector required . . . not an "almost model." On your next job, call in a Yeomans representative to show you the difference. He has a slide film which does the job quickly and thoroughly. For your convenience, also, information on Yeomans pneumatic ejectors is carried in Sweet's Catalog.

Ad number E-5801

YEOMANS

1999-1 N. Ruby St., Melrose Park, Ill.

WORLD'S LARGEST AND BEST LINE OF PNEUMATIC EJECTORS

Sewer Contracts Total $5,596,000

Harrisburg project designed to collect and treat sewage now discharged into the Susquehanna River

Sixty tide gates and regulators, two pumping stations, 6,800 ft of 48 in. dia force mains, a primary type sewage plant and outfall sewers are involved in this $5,596,000 project in Harrisburg, Pa., to collect and treat sewage now discharged into the Susquehanna River. The Harrisburg Sewerage Authority let the job in two parts:

Pumping Stations, Force Mains & Collection Works	Amount	% of Part 1	Total Contr
The Forest Co., Wharton, N. J.			
General contract	$2,644,708	95.1	47.3
Herre Bros., Inc., Harrisburg, Pa.			
Plumbing	*4,800	0.2	0.1
Heating	*23,700	0.8	0.4
E. C. Ernst, Inc., Harrisburg, Pa.			
Electrical Work	*107,884	3.9	1.9
Total, Part 1	$2,781,092	100.0	
Treatment Plant and Outfall Sewers		**% of Part 2**	
Rice & Weidman, Lancaster, Pa.			
General contract	$2,522,805	89.6	45.1
Harry A. Ressler, Mountville, Pa.			
Plumbing	*29,559	1.1	0.5
Heating	*114,800	4.1	2.1
Keystone Engineering Co., Reading			
Electrical Work	147,750	5.2	2.6
Total, Part 2	$2,814,914	100.0	
Combined total, Parts 1 & 2	$5,596,000	100.0	

* Lump sum bids

Gannett, Fleming, Corddry and Carpenter, Inc., Harrisburg, Pa., are the consultants.

One pumping station is designed for a peak flow capacity of 48.6 mgd and a second for a peak flow capacity of 9.5 mgd.

A primary sewage plant is designed for a flow of 26.8 mgd and to service a population of 175,000 by 1985.

Class A concrete is specified 3,000 psi. Cast iron pipe is ASA, A21.2 for pit, cast, or A21.6 and A21.8 for centrifugally cast.

Wages range from $2.75 for skilled through $1.75 for semi-skilled, to $1.60 for common laborers.

Pumping stations, force mains and collection works:

1C	The Forest Co., Wharton, N. J.	$2,644,708
2	Terminal Constr. Corp., Wood Ridge, N. J.	2,694,804
5	Booth & Flinn Co., Pittsburgh, Pa.	2,990,200
EE	Harrisburg Sewerage Authority	2,653,430

Bids: 1-30-58 Items	Unit	Quantity	Unit Prices 1C	2
Pump stations, 48.6 mgd peak flow	ls	job	$649,100	$732,056
9.5 mgd peak flow	ls	job	204,174	276,877
Extensions to intercepts & dvrsn chamb & exter pipe	ls	job	55,993	41,678
Intercept sewers, dvrsn cham chamb, endwall & exterior pipe, 9.5 mgd pump sta	ls	job	124,493	101,800
Force main	ls	job	976,326	929,939
Allowance for lab tests	ls	job	5,000	5,000
extra costs, RR & others	ls	job	10,000	10,000
landscaping	ls	job	5,000	5,000
added project costs	ls	job	20,000	20,000
Concrete piles	lf	340	20.00	16.00
Sewage regulat & flood contr chamb, remov stn, brick, conc & other matl from slabs, wall partitions, etc., of existing struct	cy	200	20.00	33.00
Exc, uncl, incl demolish & remov exist jtd sewer pipe	cy	11,500	12.00	9.00
Cr stone cradles	cy	100	5.00	5.50
Conc, cl A, ip, incl forms	cy	1,900	65.00	77.00
cl B, ip, incl forms	cy	100	35.00	55.00
Reinforcing steel	lb	410,000	0.16	0.18
Misc metals	lb	25,000	0.45	0.28
Lumber	bf	200	0.50	0.28
Masonry, brick	Mf	2	300.00	176.00
for manholes	vf	250	65.00	17.00
Cl manhole steps	ea	1,200	4.00	2.00
Painting	sf	2,000	0.15	0.85
Pavement,				
base crse, replace	sy	800	2.00	2.20
surf crse, replace	sy	800	2.00	2.20
Copper tube & grease ftgs	lf	3,700	1.00	1.10
Cl pipe	lf	5,000	0.26	0.17
fittings	lf	47,000	0.35	0.33
VCP, ext str, 6"&8"	lf	500	4.00	2.20
10"&12"	lf	500	6.00	2.75
15"&18"	lf	200	8.00	3.30
21"&24"	lf	200	12.00	4.40
27"&30"	lf	100	18.00	6.60
MH frame & cover, round, 24"	ea	71	72.00	61.00
26"	ea	13	145.00	132.00
32"	ea	2	175.00	165.00
2 pc, 28"x50"	ea	29	140.00	121.00
3 pc, 28"x75"	ea	5	175.00	163.00
28"x87"	ea	12	225.00	178.00
Tide gate, round, 12"	ea	2	160.00	105.00
18"	ea	5	225.00	120.00
24"	ea	9	300.00	175.00
30"	ea	8	400.00	219.00
36"	ea	4	550.00	279.00
48"	ea	6	1,000	452.00
rectangular, 30"x30"	ea	4	600.00	374.00
36"x36"	ea	2	900.00	462.00
48"x32"	ea	1	1,250	684.00
60"x42"	ea	5	2,400	774.00
Sheer gate, round, 12"	ea	2	160.00	304.00
18"	ea	5	310.00	214.00
20"	ea	1	350.00	298.00
24"	ea	8	500.00	396.00
30"	ea	13	975.00	495.00
Tide gate, 7'4"x3'0	ea	1	3,100	3,718
7'4"x3'0	ea	1	2,700	3,124
Control sewage regula, tp B, trav ratio, 1 to 1, 10-0	ea	14	850.00	1,155
2 to 1, 7-0	ea	14	1,500	1,807
6-0	ea	2	1,600	1,937
5-0	ea	7	1,700	2,073
4-0	ea	11	1,900	2,264
000	ea	1	2,200	2,477
0-2	ea	1	2,600	2,902
1	ea	1	2,800	3,223
tp A, #4	ea	1	3,600	4,075
Cr stone cradles	cy	1,500	5.00	5.50
Conc, cl B, pipe anchors, cradles, bedding & encase	cy	500	30.00	55.00
Allow on a water pit at pump station	ls	job	2,500	2,500
Additions or deductions in contract quantities:				
Exc, uncl, 10' & under	cy		4.00	8.00
over 10'	cy		10.00	12.00
Embankment, uncl	cy		2.00	4.00
Conc, cl A, compl ip	cy		70.00	80.00
cl B, compl ip	cy		40.00	45.00
Timb shtg, bracing & shoring, or lumber ordered, ip	Mbf		320.00	600.00
Stl sht piling ordered,left ip	lb		0.24	0.28
reinforcement, ip	t		300.00	400.00
CIP w/jt, complete ip	t		600.00	450.00
ftgs, w/jt, comp ip	t		800.00	650.00

Commence: 4-30-58. Completion schedule 500 calendar days. Liquidated damages $300/day

Treatment Plant (26.8 mgd) and Outfall Sewer

1C	Rice & Weidman, Inc., Lancaster, Pa.	$2,522,805
2	Fruin, Colnan Contr. Co., St. Louis, Mo.	2,571,536
11	Booth & Flinn, Pittsburgh, Pa.	2,978,500
EE	Harrisburg Sewerage Authority	3,077,500

Bids: 1-30-58 Items	Unit	Quantity	Unit Prices 1C	2
Control bldg	ls	job	$1,000,000	$987,099
Detritors	ls	job	96,600	107,430
Flocculation & settling tanks	ls	job	463,200	517,105
Chlorine contract tanks	ls	job	115,600	125,646
Sludge digesters	ls	job	267,900	284,088
Elutriation tanks	ls	job	32,000	34,955
Incinerator stack fndn	ls	job	24,900	26,445
Outfall sewer	ls	job	145,500	110,623
Garage & storage building	ls	job	16,000	7,334
Water supply main	ls	job	10,500	8,186
well, 400' deep	ls	job	9,200	9,862
Well pit & storage struct	ls	job	5,130	5,996
Deep well pumping equip	ls	job	6,900	7,592
Fencing	ls	job	9,475	9,542
Pipe tunnel	ls	job	27,900	29,410
Inter unit piping	ls	job	95,500	103,871
Rds, parking areas, conc curb, walks, surf drain, RR grade xing & flagpole	ls	job	61,200	69,695
Exc, bkfl & embank not incl elsewhere	ls	job	54,900	45,523
Cr stone cradles	cy	100	6.00	5.98
Conc, cl B, pipe anchors, cradles, encase & bedding	cy	100	40.00	46.39
Exc below subgrade	cy	100	8.00	5.98
Allowance for lab tests	ls	job	7,500	7,500
extra cost, RRs & others	ls	job	10,000	10,000
landscaping	ls	job	7,500	7,500
supplies, plt tools, trucks & genl eqp	ls	job	30,000	30,000
added project costs	ls	job	20,000	20,000
Additions or deductions in contract quantities:				
Exc, earth	cy		4.50	1.00
rock	cy		19.00	15.00
Backfill	cy		3.00	0.40
Embankment, uncl	cy		2.00	0.75
Conc, cl A, compl ip	cy		56.00	75.00
cl B, compl ip	cy		40.00	40.00
Reinforcing steel, compl ip	t		260.00	300.00
Timber shtg, bracing, shoring or lumber ordered, lip	Mbf		250.00	150.00
Stl sht piling ordered, lip	lb		0.25	0.25
CIP w/jts, compl ip	t		400.00	500.00
ftgs w/jts, compl ip	t		550.00	700.00
W supp well, drill 12" hole	lf		10.00	15.00
stl casing, 12" f&i	lf		9.00	9.00
Extra test of water supply over 24 hr, incl set up apparatus & make test	hr		45.00	12.00

Commence: 4-30-58. Complete: 600 cal days. Liq dam: $400/day

Open Ditches and Pipe for Storm Water Drainage

This Meadow Brook storm water drainage project in Connecticut, includes 1,152 ft of open channel, 528 ft of reinforced concrete pipe of various diameters, manholes and appurtenances.

The $39,979 award by the city of Bloomfield, Conn., 7% below the engineer's estimate and 28.4% below the high bid, went to Anderson-Fairoaks Corp., Hartford, Conn., the low of three bidders.

Camp, Dresser & McKee, Boston, Mass., are the consultants.

Bidding shaped up like this:

1C	Anderson-Fairoaks Corp., Hartford, Conn	$39,979
2	Juno-Maskel Constr. Co., Inc., E. Hartford, Conn.	47,457
3	Seminole Constr. Co., E. Hartford, Conn	55,883
EE	Camp, Dresser & McKee, Boston, Mass	43,000

Bids: 6-2-58 Items	Unit	Quantity	Unit Prices 1C	2
RCCP, std, 15" f&i	lf	50	$8.25	$15.00
ext str, 54" f&i	lf	235	24.00	40.00
60" f&i	lf	151	28.50	45.00
63"x98", eliptical f&i	lf	92	110.00	85.00
Open ditch,				
6' bottom constr	lf	597	5.00	5.50
8' bottom constr	lf	555	8.50	6.25
Drain structs				
3 compl constr	ls	job	4,200	5,500
Headwalls, 4 compl constr	lf	job	5,500	7,000
Misc and cleaning up	ls	job	2,100	3,400

Completion schedule: 150 cal days
Liquidated damages: $50/day

Materials and Labor Prices — Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES

- Cement, Aggregate Ready-mixed Concrete, Asphalt: Last, Aug. 7; Next, Sep. 4
- Iron and Steel Products, pipe: Last, Aug. 14; Next, Sep. 11
- Wood Products, Glass, Explosives, Chemicals: Last, Aug. 21; Next, Sep. 18
- Wage Rates, Building Board, Lath, Insulation: Last Jul. 31; Next, Oct. 12

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, in paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized or lump
Atlanta	$149.90p	$149.90p	$299.80p	$334.55p	.....	.....	$30.50p	$32.70p	$23.50	$24.50	$.....
Baltimore	217.00	231.00	434.00	491.00	602.00	690.00	36.00k	41.00k	35.60	23.20	.....
Birmingham	135.00r	152.00p	.....	303.00p	376.00p	465.00r	27.00ff	38.00y	35.02	22.30	26.33g
Boston	232.00†	248.00†	463.25†	556.00†	.....	.....	41.50p	46.50p	39.20†	31.20†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	30.00	32.00	38.00	35.20e	.....
Cincinnati	205.00j	225.00j	296.00,dd	213.00r	288.00j	314.00j	48.75r	47.00r	30.04j	26.04r	30.04j
Cleveland	209.00	223.00	.....	475.00	.....	.....	38.00	41.00gg	31.00	25.00	.....
Dallas	152.00	152.00	300.00	364.50	446.25	552.50	26.75	48.00	41.80	24.58	28.50
Denver	.....	.....	.....	.....	.....	.....	21.50	49.50	46.00p	42.00p	46.00p
Detroit	273.00	298.00	545.00	.....	794.00	906.00	47.50p	48.00p	38.00	34.00	.....
Kansas City	158.00	158.00	312.00	312.00	400.00	500.00	33.00	33.00	36.26	34.26	29.76
Los Angeles	r	r	r	r	r	r	32.50‖	.....	38.00	38.00	39.00
Minneapolis	192.00p	215.00p	437.00p	215.00ee	.....	.....	45.60pp	54.00y	47.00bbe	37.00bbe	49.00bbdd
Montreal	170.00,u	178.00,u	325.00,uu	270.00g	400.00g	.....	48.25b	56.30b	39.00	22.00	13.25
New Orleans	186.00	186.00	380.00	380.00	.....	.....	42.00	55.00	44.00	33.00	32.00P
New York	176.90\	188.70	283.00,h	283.50,n	.....	.....	44.00	.....	40.00	37.00	.....
Philadelphia	169.00	180.20	337.90	405.00	.....	.....	30.34	38/42	27.60	25.60	3.17m
Pittsburgh	147.50t	157.75t	295.00t	335.00t	435.00t	500.00t	39.00t	46.00t	36.00t	31.00t	.....
St. Louis	178.50n	185.00p	391.00n	401.00p	459.00	621.50	43.00t	41.50	0.95aa	.80aa	1.35s
San Francisco	158.85*	177.10*	235.30dd*	.....	.....	.....	43.00*	43.00*	29.24	29.24	31.74
Seattle	235.00n	270.00p	490.00p	285.00pw	.....	.....	48.00	62.00	52.00bb	38.00bb	4.50aabb
Toronto	158.00	173.50	336.00	261.00jf	378.00	.....	35.00	63.00	36.00	33.50	31.50

*t F.o.b. Yard. **e F.o.b. plant Stockton. *f F.o.b. yard Roxbury. *n Smooth. *p $4.50 del. *r 8 x 12 x 12 in.-6 cell. *d Pulverized hot. *e 5%, 10th following month. *f 8 x 8 x 12. *z Lumps, $26.72. *h F.o.b. trucks, job site N.Y.C. *i 60 lb sacks. *j Truck load or over. *k $1.00 discount. *l Red face. *m Per bbl., 180 lb. processed. *n 7¾ x 7¾ x 12. *o Mason's double hydrated pressure. *p Truck lots. *q Provincial and Municipal tax extra. *s 8 x 16 x 12. *t 2% cash. *u Incl. Federal tax. *v Sand lime. *w 8 x 8 x 12 *y Chi common. *z Pebble: 80 lb sack. *aa 50 lb sack. *bb LCL. *dd 8 x 12 x 12. *ff 80% common. *gg Smooth. $81.50 Rough.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

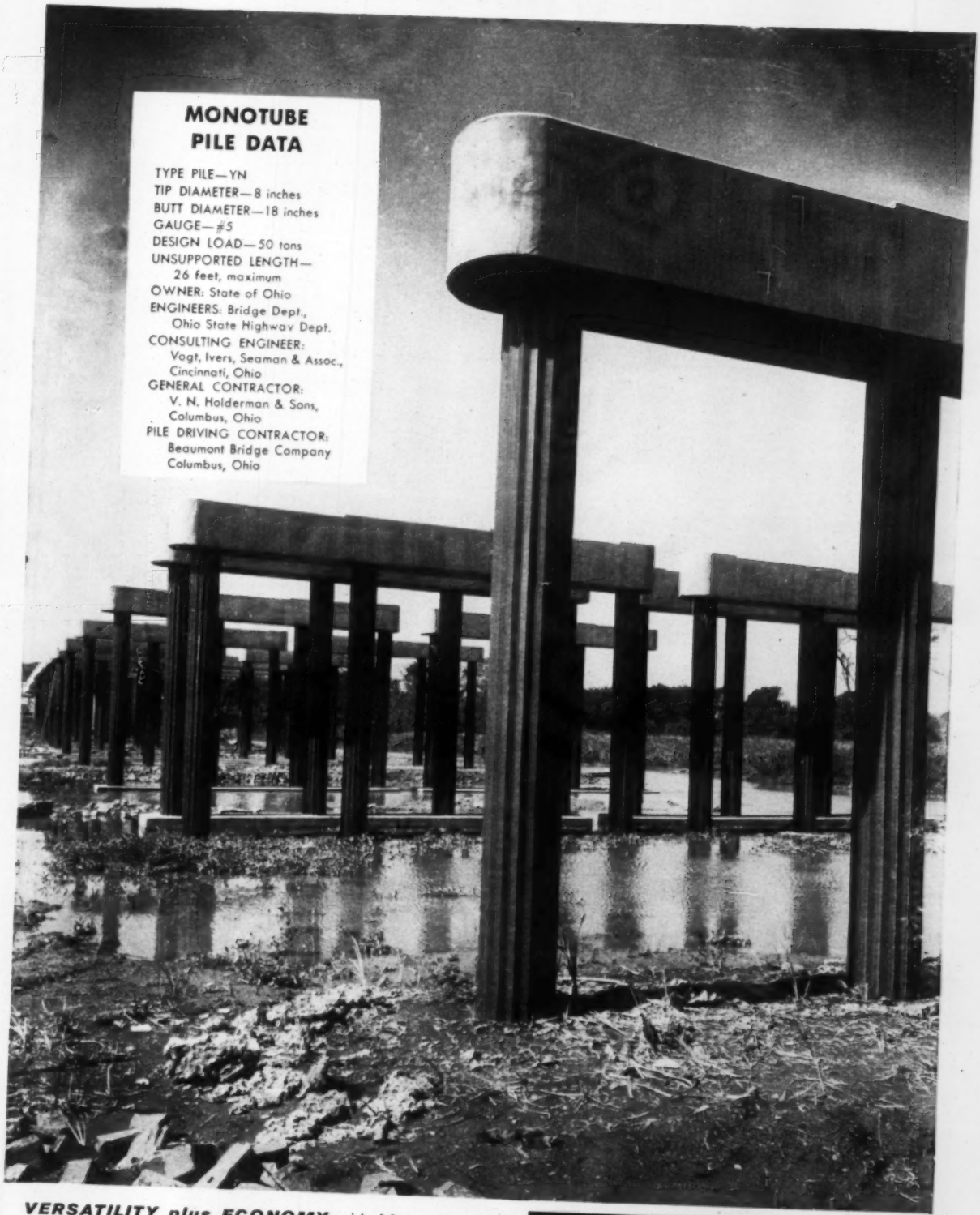
	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry a	WHITE LEAD Per 100 lb. in 100 lb. cases In oil w	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES: Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 380 lb. bbl. per ton
Atlanta	$16.50	$30.125	$3.50	$3.85	$3.81	3.39	$2.20	$2.62	$0.67	$37.75
Baltimore	16.25	29.75	3.00	4.40	3.50	2.78	4.25	4.25	.48	54.25
Birmingham	16.50	30.125	3.90	3.40	....	3.09	2.20ii	2.20ii	.42ff	45.00ee
Boston	16.25	29.75	....	....	....	3.30g q	2.23z	2.23z	.50g	58.00g'
Chicago	16.25	29.75	....	....	....	3.65‖s	2.74‖z	2.98‖z	48.00‖bb	57.70‖
Cincinnati	16.25	29.75	....	....	....	3.13	2.70	2.73	.428y	55.96
Cleveland	16.25	29.75	2.46ppq	2.57pg	2.88pg	3.196†	2.268a	2.85	.501y	49.00pg
Dallas	16.50	30.50	....	3.25S	....	3.00u	3.00a	3.00a	.470	66.00kk
Denver	16.75	30.25	3.98	5.30	3.70	2.96	2.16a	2.55a	.48ff	50.00
Detroit	16.25	29.75	2.70	3.95	2.70	2.83	1.91f	2.49f	.432ff	51.00
Kansas City	16.25	30.50	2.99	3.43	3.01	3.02ii	2.14†	2.14†	.63y	.....
Los Angeles	16.25	30.00	3.30n	4.50n	4.20n	3.20n	2.18nii	l	.70ny	l
Minneapolis	16.25	29.88/29.75	....	....	....	2.78	2.27hi	2.41hi	.442i	50.00r
Montreal	.....	.....	5.02Dfft	5.94xfft	4.65kfft	5.40	4.65f	4.65f	1.60	....
New Orleans	....	....	....	....	....	2.34	1.63	2.85	0.680	....
New York	15.25C	29.75	....	....	....	3.20	ev.16e	2.45e	.425e	49.00*
Philadelphia	16.25	29.75	3.60	3.40/3.65	3.50/4.60	3.00/3.30	2.54e	2.54e	.37/.45	48/54
Pittsburgh	16.25	29.75	2.20ŧE	2.25ŧF	2.25ŧG	3.37z	2.50z	.45	....	....
St. Louis	16.25	29.75	....	....	....	3.03iiz	2.32hh	2.65hh	.28y	62.00
San Francisco	16.25	30.00	3.20	4.33	3.58	2.95	1.97aa	3.10	.460jj	54.00
Seattle	16.25	30.25	3.47	4.19ee	....	3.82pee	3.30kee	....	.50ee	51.40ee
Toronto	.....	.....	5.00	5.75	5.50	4.50	3.45z	2.65e	1.10j	50.00A

*t Delivered. * Note: Red lead in oil 50% higher than white lead in oil. ** Aver. wt. approx. 425 to 550 lb drums. *a Red lead prices change frequently due to pig lead price changes. *b U.S. War Dept. Spec. 3-49A. *c ASTM Spec. D266-31. *d 80% minimum ferric oxide. *e 15 lbs. *f Per 432 sq ft. *g F.o.b. yard, Roxbury. *h Per roll, 65 lb. *i Net carload prices, Minneapolis and vicinity. *j 45 gal containers. *k Over 80% ferric oxide. *l Not used. *n F.o.b. city. *o Per 60 lb roll. *p 5-drum, 50 gal each. *q Per 90-lb roll. *r F.o.b. factory, Chicago. *s Truckload. *t Incl. Federal tax. *u Per 90-lb square. *v Per ton. *w Price to contractors $1.25 less. *x Ready-mixed. *y 55-gal container. *z Drums. *aa 15 lb. sq ft. roll. *bb Roofers coating and cement. *cc LCL, truck delivery. *dd Asphalt pitch in 100 lb package. *ff 5-gal drums. *gg F.o.b. factory. *hh Incl. freight. *ii Per roll. *jj Asbestos roof coatings. *kk 400 lb barrels. *ll ASTM Spec. D962-49 *C 95%. *D Std. black. *ŧ Milit. spec.: E TTP27; F TTV81; G TTP31. *H No quoted after Oct. 1957 *R revised.

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER‡ Neat per ton	Gauging per ton	VERMICULITE‡ Home Insulation pellets	Plaster aggregate	Concrete Aggregate Untreated per bag of 4 cu ft	PERLITE‡ Plaster Aggregate	Concrete Aggregate Untreated	ALUMINUM SHEETh† Flat .102" th 36"x96" & 48"x144" per lb‡t	Corr roof .032" th 35"x12' per sht	STAINLESS STEEL† SHEET-TYPE 302g 20 ga 48"x96-120" per cwtkk	28 ga 36"x120" per cwtmm	COPPER WATER* TUBING-TYPE L 2000 ft lots per ft ½"b	⅝"e
Atlanta	$31.00	$36.00	$1.55s	$1.65s	$1.80sl	$1.65	$1.65	$0.424s	$9.45n	$61.44n	$67.50	$16.74f	$23.41f
Baltimore	23.80	34.60	0.95	1.15	1.15	1.15	1.65	0.431	0.480r	56.25	64.25	0.1674	0.2371
Birmingham	33.00	39.00	1.55	1.55	1.80l	1.55	1.55l	0.446	10.48	67.34	76.09	0.1585	0.2209
Boston	22.00	30.00	1.40	1.40	1.45	1.45	1.50	0.466	30.10p	65.42dd	71.92ddff	0.1620	0.2261
Chicago	26.80	26.80	1.55	1.60	1.60l	1.60	1.60	0.506x	10.148a	65.15aae	73.90aae	0.1620	0.2261
Cincinnati	28.00*	28.00*	1.75	1.75	1.75	1.85	1.90	0.434	9.56	65.28	74.03ff	0.1608	0.2244
Cleveland	28.00	44.70	1.13k	1.16ii	1.24l	1.45	1.45	0.486aa	8.28	65.33oo	74.08oo	16.20f	22.61f
Dallas	30.65	32.65	1.05	1.21	1.32	1.21	1.32	0.484	0.517r	65.00	78.00	0.1520	0.2170
Denver	25.00	25.00	1.50	1.40	1.50	1.40	1.55	0.448	9.75	67.32gg	76.09gg	0.1772	24.69
Detroit	26.00	25.00	1.28	1.33	1.41	1.25k	1.43k	0.456a	10.376a	65.15a	73.90a	22.00f	26.75f
Kansas City	30.00	35.00	1.14	1.18	1.26l	1.18	....	0.444	9.50	67.50	76.25	15.85f	22.09f
Los Angeles	27.00	28.00	1.25k	1.20k	1.25	1.06	1.10	0.486	10.543d	67.10	75.85	0.1585	0.2209
Minneapolis	35.00	35.00	1.55	1.70	1.90	1.40	1.40	0.483	15.15w	65.71	73.21f	0.1620f	0.2261f
Montreal	27.60A	35.60A	1.25	1.40	1.50	1.15a	1.15a	0.437	9.92	66.50	.....	0.1827	0.2160
New Orleans	34.00	48.00	1.25	1.25	1.25	1.25	1.25	0.424	8.503	71.50	72.45	0.1585	0.2209
New York	24.20	30.20	1.35	1.30	1.50	1.40	1.40	0.506a	10.14ad	68.58	77.33	16.08f	22.44f
Philadelphia	22/25	32.00	1.35	1.35	1.40l	1.05	1.05	0.44aw	9.46a	66/68a	75/77a	15.62f	21.76f
Pittsburgh	30.00nn	33.00aa	1.60nn	1.50nn	1.35	1.73	1.73	0.452	9.46	64.00	76.25ppR	0.1419	0.1980
St. Louis	29.00	40.00	1.35	1.60jj	1.55	1.60	1.60	0.452	10.11	68.11	74.81y	16.20fm	22.61fm
San Francisco	29.50	30.50	1.38	1.38	1.50	1.38o	1.58o	0.506	9.13	65.90	74.35	0.1620	0.2261
Seattle	42.40	45.60	1.55	1.25k	1.85l	1.50k	....	0.486	9.90	67.02	75.77	0.1585	0.2209
Toronto	28.00	45.50	1.20	1.30	1.35l	....	1.55	0.3995	24.00ae	73.74	86.52	0.2525	0.2684p

‡trucklots, delivered †fob warehouse *fob city *a delivered *b ½" O.D. *c ¾" O.D. *d 0.100"th *e 34" x 80" sheet *f per 100 ft *g 5 tons & up; cold roll, anneal & pickled 2B finish *h incl. Federal tax *i add 25¢ for pint of additive *j 1100 & 3003 alloy, mill finish *k bag of 3 cu ft *l treated with air entraining agent *n 2-10M ft *o fob mill fr equalized with nearest stocking competitor *o 250 sacks or more *p 100 sq ft *r per lb. *s 30 lb bag *t 36" x 96;-10.81 lb/sh; 48" x 144"; 21.7 lb/sh *u 19.31 lb/sh *v fob plant *w 48" x 144" *x 100th *y 27 gauge *aa 16M lb & up *dd add $1.00 cwt boxing *ee 4 tons & up *ff 26 ga *gg add $2/cwt boxing; $0.75/cwt on skids *hh Theoretical wt for 48" x 96"; 80.4-lb. per sh *ii 300-bag lots *jj 100-lb bag *mm Theoretical wt; 19.7-lb per sh *nn 2% cash *oo skid packed *pp type 304 *R revised.



VERSATILITY plus ECONOMY with Monotube piles. When soil conditions at this site in Mansfield, Ohio, prohibited conventional construction in crossing low-lying land, this adaptation of a foundation supported on Monotube steel piles proved to be an economical solution.

Tapered, fluted Monotube piles are available in lengths, diameters and gauges to meet every requirement. Write The Union Metal Manufacturing Co., Canton 5, Ohio, for complete information.

UNION METAL

Monotube Foundation Piles

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES

- Cement, Aggregate Ready mixed Concrete, Asphalt: Last, Aug. 7: Next, Sep. 4
- Iron and Steel Products, pipe: Last, Aug. 14: Next, Sep. 11
- Wood Products, Glass, Explosives, Chemicals: Last, Aug. 21: Next, Sep. 18
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Jul. 31: Next, Sep. 25

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

	GYPSUM PLASTER BOARD tapered edge per Msq ft ½"	½"	GYPSUM BOARD LATH plain or perf per Msq ft ⅜" x 16" x 48"	GYPSUM SHEATHING tongue & groove per Msq ft ½" x 2' x 8'	FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" sq ed	½" T&G	FIBER BOARD INSULATION sq edge, paint per Msq ft ½"	MINERAL WOOL INSULATION loose, per 40-lb bag a	3" batts per M sf	GLASS FIBER INSULATION loose, per 40-lb bag a	3" batts per M sf	ALUMINUM FOIL 60¢ Kraft Expansible 1 side foil per roll of 250 s. f.	Blanket 2 layers foil per Msq. ft
Atlanta	$70.00	$60.00	$43.50	$70.00	$70.00	$127.00	$70.00	$1.30z	$80.00	$2.00b	$75.00	.....	.....
Baltimore	51.70f	45.55f	34.25f	55.35f	65.00f	108.50f	69.00f	1.30	66.50	1.50	45.00	$4.00g	$33.50
Birmingham	68.93	57.00	47.77	75.00	65.00	136.50	81.00	1.40	70.00	1.80	75.00	3.30g	.....
Boston	60.00m	50.00m	36.00m	80.00m	65.00m	120.00m	79.00kn	1.45	75.00	.....	65.00	5.30	53.50
Chicago	67.00	54.00	45.00	62.00	87.00	123.00	87.00	1.85	90.00	.....	63/65l	5.25g	.....
Cincinnati	48.00w	42.85w	32.05w	51.16w	70.00w	125.00w	72.50w	1.30	65.00	1.30	76.50	3.12j	50.00
Cleveland	62.00	56.50	41.50	65.00	75.00	125.00	90.00	1.35/1.50	75.00	.....	53.00*	17.50o	55.00
Dallas	55.00	52.50	42.50	60.00	68.50	117.50	68.50	2.00	82.25	1.45	66.15	4.40g	.....
Denver	62.00	54.50	41.00	62.00	75.90	126.00	74.90	.....	71.00u	1.30u	60.00u	11.00r	21.00
Detroit	64.00	53.00	37.00	68.00	60.50	100.50	60.50	.....	.....	1.95b	88.00	.....	.....
Kansas City	65.00	55.00	40.00		72.00	115.00	75.00	1.40	75.00	2.00	75.00	3.60d	53.98f
Los Angeles	66.00	60.50	0.33z	64.50	75.00	125.00	80.00	.....	88.00	1.35u	64.00	4.40g	.....
Minneapolis	75.00	65.00	0.41z	80.00	78.00	140.00	78.00	2.00	80.00	1.80	80.00	5.50	.....
Montreal	56.00	47.40	36/39	53.00	63.25	.....	68.50	1.50	66.00	1.80	66.00	9.00q	56.00
New Orleans	60.00	50.00	45.00	60.00	75.00	140.00	72.50	1.75	85.00*	.....	.....	.....	.....
New York	55.25	47.25	36.25	54.25	75.01	120.00	75.00	1.55b	68.50	1.55b	68.50	4.38i	52.50c
Philadelphia	50/55	48/53	34/40	49/54	68/73	105/110	55/65	.....	60/70	.....	70/75	5.60/6.34	40/50
Pittsburgh	70.00	65.00	40.00	.....	62.50	102.50	57.50	1.05x	55.00x	1.05x	55.00x	3.80x	38.50
St. Louis	67.00	56.50	40.00	70.00	75.00	120.00	80.00	1.35	85.00	1.65	70.00	4.50x	.....
San Francisco	57.00	48.00	0.35z	58.00	68.00	109.00	67.00	1.60	66.50	1.60	66.50	4.95	55.00
Seattle	68.30	57.65	51.05	65.00	74.50	125.00	73.50	1.60z	74.00	1.90*p	80.00*l	4.25	46.50
Toronto	55.00	47.00	38.00	64.50	75.00	.....	.....	1.50	62.50	.....	62.50	16.00e	46.00

*Paper backing. *b LCL. *c 40¢. *d 80¢. *e 12" to 24" width. *f 2". *g 10 ton quantities. *h Distributor's siding. *i Per Msf roll. *j 32¢ bag. *k 500 sf. *l Per cwt *s 35¢ bag. *t 26¢ bag. *u Flame proof $75. *w F.o.b. city. *x Sq yd. *z Spun rock wool, 3½ cu ft bags

*o Per Msf roll. *p 32¢ bag. *q 500 sf. *r Per cwt

HOURLY WAGE RATES—Base rate + fringe benefits

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor— Building	Heavy Cons
Atlanta	$3.75	$3.05	$3.15+7½¢d	$3.225	$3.125	$3.35+21½¢e	$3.30+25¢d	$1.70	$1.70
Baltimore	3.80+10½¢d	3.20+7½¢d	3.75+7½¢d	3.80/3.95+10¢Q	3.45+7½¢d	3.425+7½¢d	3.30+7½¢d	2.05+7½¢d	2.05+7½¢d
Birmingham	3.75	2.85	3.35+10¢c	2.65*	3.05	3.425	3.32+10¢c	1.65	1.75
Boston	3.75+15¢a	3.40+10¢d	3.70+20¢e	3.77½+10¢f	3.65+30¢	3.70+12¢e	3.20+10¢d	2.55+7¢d	2.50+7¢d
Chicago	3.87½+7½¢t	3.65+20¢e	4.00+16¢t	3.55+5¢t	3.70+23¢t	3.90+12¢t	3.75+22¢ee	2.77½+7½¢	2.77½+7½¢t
Cincinnati	3.85	3.57½	3.60+10¢d	3.375/3.60	3.62½	3.82+6¢W	3.80+9½¢e	2.62½	2.525
Cleveland	3.805+10¢t	3.83	3.73+10¢e	3.83	3.855	3.73+10¢d	3.10	3.005	
Dallas	3.875	3.175	3.225+7½¢t	3.20/3.25	3.56½+10¢c	3.75+7½¢t	3.375+8½¢t	1.70	1.70
Denver	3.75	3.25	3.175+7½¢d	3.05	3.475+12½¢hh	3.60+14.1	3.55+10¢d	2.17	2.17
Detroit	3.77+38¢H	3.40+40¢e	3.75+22½¢P	3.47+25¢t	3.66+34¢c	3.85+34½¢C	3.73½+14¢R	2.65+33¢R	2.80+10¢R
Kansas City	3.85	3.325	3.40	3.345	3.625	3.47½+16¢	3.40+9¢W	2.355	2.405
Los Angeles	3.85+10¢hh	3.375+10¢d	3.85+20½¢kk	3.41+10¢d	4.00+30¢ll	4.15t	3.80+29¢f	2.68+10¢d	2.68+10¢d
Minneapolis	3.725	3.30	3.47	3.30	3.40+23¢cc	3.38+36¢e	3.42+20¢e	2.55	2.55
New Orleans	3.475+5¢t	2.95	3.25+7½¢t	3.075+7½¢t	3.07+5¢t	3.475+7½¢t	3.40+15¢t	1.70	1.70
New York	4.45+38¢n	4.10+3 coe[hi]	4.30+36¢n	4.35+35¢ee	4.35+50¢t	4.90+51¢eF	4.30+30¢hh	3.00+24¢F	3.00+24¢F
Philadelphia	4.00+17¢t	3.635	4.23+17½¢M	4.005+10¢t	3.90+15¢t	4.07½+16¢e	4.00+11½¢t	2.35	2.65
Pittsburgh	4.15+20¢m	3.675+10¢t	4.00+10¢d	3.64+10¢d	3.825+17½¢m	4.35+33¢d	4.00+20¢m	2.45+20¢	2.30+20¢ff
St. Louis	3.90+31½¢	3.575+10¢t	3.60+7½¢t	3.675t	3.80+7½¢t	3.95½+30¢e	3.92½+27½¢t	2.625+10¢t	2.625+10¢t
San Francisco	3.95+52½¢dd	3.30+32½¢mm	3.62½+10¢t	3.405+10¢t	3.74+52½¢ee	3.91+34½¢D	3.70+46¢R	2.685+10¢t	2.685+10¢t
Seattle	3.90+10¢d	3.13+10¢d	3.40+10¢d	3.21+20¢e	3.40+10¢d	3.45+20¢X	3.62+23¢T	2.70+10¢d	2.70+10¢d
Montreal	2.20+5¢jj	2.10+5¢jj	2.25+5¢jj	2.00+5¢jj	2.35+5¢jj	2.20+5¢jj	2.32+5¢jj	1.50+3¢jj	1.50+3¢jj
Toronto	2.85+11¢t	2.50+10¢t	2.55+10¢t	2.60+10¢t	2.60+20¢tt	2.80+11¢t	2.69+17¢tt	1.65+6¢t	1.65+6¢t

ENR Skilled Average (Bricklayers, Carpenters, Iron workers): $3.725. ENR Common Average $2.468.

R: Detroit common labor revised. bldg.: heavy bldg. constr.: home bldg. & tunnel: heavy constr.: open underground work & heavy constr.

	Truck drivers 1½ T	under 4 cy	over 4 cy	Tractor Operators Incl. bulldozers 34-49 hp	70-100 hp	100 & over	Tractor scraper 15-16 cy	Power cranes & shovels ½ cy	¾ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	$1.70	$1.80	$2.05	$2.70	$2.85	$2.8	$2.70	$3.225	$3.375	$2.70	$2.625	$1.77
Baltimore	2.00+7½¢a	2.00+7½¢a	2.10+7½¢hh	3.40/3.55 +10¢a,b	3.40/3.55 +10¢a,b	3.40/3.55 +10¢a,b	3.40/3.55 +10¢a,b	3.80/3.95 +10¢a,b	3.80/3.95 +10¢a,b	3.40/3.55 +10¢a,b	2.85/3.00 +10¢a,b	2.10+7½¢a
Birmingham	1.73	1.92ff	2.25ee	2.79	2.79	2.79	2.93	2.93	2.93	2.89	2.52	1.90
Boston	2.395c	 c	 c	3.40+10¢ee	3.40+10¢ee	3.40+10¢ee	3.40+10¢ee	3.775+10¢a	3.775+10¢a	3.40+10¢a	3.325+10¢a	2.60+7¢aa
Chicago	2.36+15¢fa	.....	.....	3.30+5¢a	3.45+5¢a	3.292+5¢a	3.00+5¢a	3.90+5¢a	3.90+5¢a	3.25+5¢a	3.10+5¢a	.....
Cincinnati	2.45+2½¢ee	2.55+2½¢ee	2.65+2½¢ee	3.375	3.375	3.375	3.375	3.375R	3.60	3.60	3.60	3.60
Cleveland	2.70+10¢e	2.75+10¢e	2.75+10¢e	3.58	3.58	3.58	3.58	3.83	3.83	3.58	3.455	3.455
Dallas	1.70	1.70	1.70/2.625l	1.70/2.625l	1.70/2.625l	1.70/2.625l	1.70/2.625l	1.70/2.625l	1.70/2.625l	1.70/2.625l	1.70/2.625lU	1.775/2.00l
Denver	2.30	2.40	2.55	2.30	2.90	2.90	2.90	3.05	3.05	2.90	2.90	2.45
Detroit	2.80	2.80	2.80	3.50+10¢a	3.50+10¢a	3.50+10¢a	3.50+10¢a	3.50+10¢a	3.50+10¢a	3.50+10¢a	3.225+10¢a	2.71+25¢mm
Kansas City	2.33a	2.33a	2.405a	2.65	3.10a	3.10a	3.10a	3.345	3.345	3.10	3.345t	2.45
Los Angeles	2.83+10¢a	2.83+10¢a	3.03+10¢a	3.71+10¢a	3.71+10¢a	3.71+10¢a	3.81+10¢a	3.81+10¢a	3.81+10¢a	3.81+10¢a	2.93+10¢a	2.89+10¢a
Minneapolis	2.55	2.55a	2.70a	2.93	3.15a		3.15	3.37a	3.63a	2.93	2.82	2.70
New Orleans	2.425+7½¢a	2.425+7½¢a	2.425+7½¢a	3.75+7½¢a	3.075+7½¢a	3.075+7½¢a	3.075+7½¢a	3.075+7½¢a	3.075+7½¢a	3.075+7½¢a	2.425+7½¢a	1.80
New York	2.21+22½¢a	2.75+14¢hh	2.75+14¢hh	3.625+29¢k	3.625+29¢k	3.625+29¢k	3.75+30¢k	4.50+36¢k	4.50+36¢k	3.75+30¢k	3.75+30¢k	3.35+27¢aa
Philadelphia	—2.315/2.45+12½¢aa—			—3.31/4.09½+10¢a—			3.34/4.09½ +10¢a	—3.34/4.09½+10¢a—		3.34/4.09½ +10¢a	3.34/4.095+10¢a	2.35+15¢a
Pittsburgh	2.37+20¢m	2.51+20¢m	2.61+20¢m	3.44+10¢a	3.44+10¢a	3.44+10¢a	3.44+10¢a	3.64+10¢a	3.64+10¢a	3.64+10¢a	3.15+10¢a	2.30+20¢m
St. Louis	2.65+7½¢oo	2.70+7½¢a	2.70+7½¢a	3.675kk	3.675kk	3.675kk	3.675kk	3.675kk	3.675kk	3.675kk	3.125kk	3.125kk
San Francisco	2.81+10¢a	2.75+10¢a	2.89+10¢a	3.70+10¢a	3.70+10¢a	3.70+10¢a	3.70+10¢a	3.85+10¢a	3.85+10¢a	3.75+10¢a	3.10+10¢aR	2.955+10¢a
Seattle	2.87+17½¢aa	2.87+17½¢aa	3.07+17½¢aa	3.26+20¢tt	3.26+20¢tt	3.26+20¢tt	3.26+20¢tt	3.63+20¢tt	3.63+20¢tt	3.35+20¢tt	2.99+20¢tt	2.90+10¢a
Montreal	1.50+3¢ll	1.50+3¢ll	1.50+3¢ll	1.70+4¢ll	1.93+4¢ll	1.93+4¢ll	1.93+4¢ll	2.19+5¢ll	2.19+5¢ll	1.93+4¢ll	1.80+4¢ll	1.80+4¢ll
Toronto	1.75+9¢tt	1.75+9¢tt	1.75+9¢tt	2.00+8¢tt	2.10+8¢tt	2.10+8¢tt	2.10+8¢tt	2.60+10¢tt	2.60+10¢tt	2.10+8¢ii	2.15+9¢tt	2.15+9¢tt

*a H & WF. *b lower rates, straight time; other broken. *c 2-axle; 10 wh, 3 axle $2.45; Euclid $2.65. *d intermediate. *e bldg contr.; highway $2.45+7¢ WF. *f less than 2 T. *g up 6 cy. *h 4% WF, 4% PF. *i 6-8 cy. *j plus $2 pd by employer for hosp. death benefits to family. *k bldg constr; steel contr $3.475. *l higher rates are union, Other taken from min. wage approved by County Comm. Court. *m 10¢ H & W, 10¢ PF. *n flatbed. *o under 10 cy. *p over 10 cy. *q over 50 hp. *r blade grader. *s WF. *t single. *u incl. 10¢ H & W. *v 7½¢ H & W. 5¢ PF. *w 7½¢ WF, 10¢ PF. *x to 3½ cy. *y 3½ cy & over. *z 3½ cy & over. *aa plus W & PF. *bb 3% WF, 2% PF; Plus 11 PH. *cc 11¢ WF, 11½¢ PF, 11 PH. *dd up to 5 cy. *ee 5 cy & over. *ff 1½ to 3 T. *gg up to 5 T; 5 T & over, 2.12. *hh 5¢ H & WF ,2½¢ PF. *ii 4% VF *kk Incl. 10¢ WF. *ll Incl. 2% VF. *mm 10¢ H & WF, 10¢P, 5¢ VP. *oo Plus $2.25 wk. WF. *ss 5% WF, plus 6 PH. *tt 10¢ H & WF, 10¢ PF. *R revised

MEXICO CITY PRICES

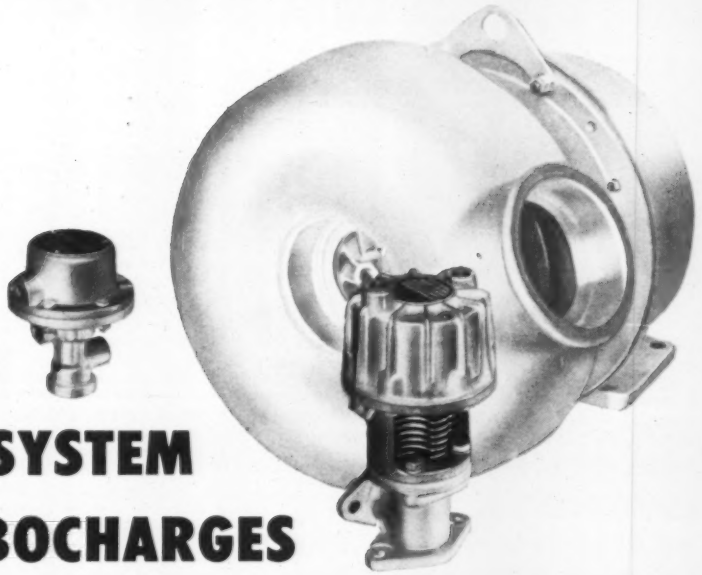
Pesos, F.o.b. City		Jul. '58	Aug. '58
Common Wages—Building (8 hr. day) (Peons)	av. per hr.	1.57	1.57
Common Wages—Heavy Const. (8 hr. day) (Peons)	av. per hr.	2.00	2.00
Skilled Labor Wages			
Carpenters (8 hr. day) 1 cl.	av. per hr.	3.25	3.25
Bricklayers (8 hr. day) 1 cl.	av. per hr.	2.87	2.87
Struct. Iron Workers (8 hr. day)	av. per hr.	4.38	4.38

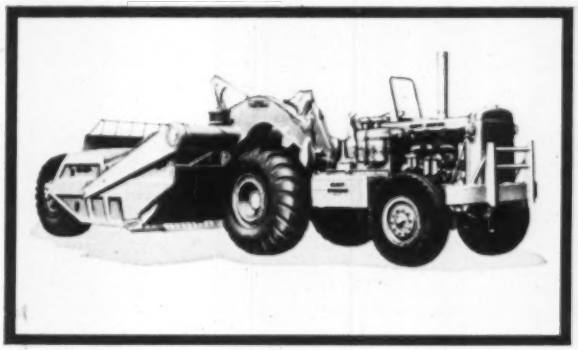
Struct. Steel, Shapes		Jul. '58	Aug. '58
3"-15" x 12 meters	per metric ton	2400.00#	2400.00#
# fob Monterrey			
Reinf. Steel, Corrugated Rods			
⅜" x 11 meters	per ton	1800.00	1800.00
½" x 11 meters	per ton	1800.00	1800.00
⅝" x 11 meters	per ton	1750.00	1750.00
¾" x 11 meters	per ton	1750.00	1750.00
⅞" x 11 meters	per ton	1750.00	1750.00
1" x 11 meters	per ton	1750.00	1750.00

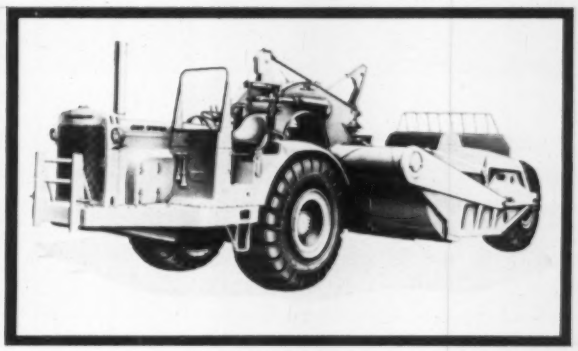
Gravel truck load at 3½ cu. meters		Jul. '58	Aug. '58
Blue Gravel	per tr. load	81.00	84.00
Rose Gravel	per tr. load	65.00	65.00
Cement, Std. Port. (Tolteca)	per ton	230.00	230.00
Lumber			
1" Pine	per M ft.	1700.00	1700.00
1½" Pine	per M ft.	1900.00	1900.00

* Cost of living bonus inc. in base pay. *a 6 hr day. *b 7 hr. day. *c 5% vac. stamp fund plus 12¢ WF for bricklayers; 4% VF for electricians plus 10¢ WF, 1% PF. *d H & WF. *e 10¢ H & W. 10. VF. *f 10¢ H & W, 5¢ VF. *g 2¢ Ed, 7½¢ H & W. *h $2.85 homes & housing plus 7½¢ WF. *i WF. *j Inc. 4% VF; 1% PF pd by employer. *k 10¢ WF, 10¢ VP, 5¢ HP. *l 4% VF. *m 10¢ WF, 10¢ PF. *n 7½ V & Hol., 3% H & W, 1% PF. *o 10¢ WF, 10¢ PF. *p 3% WF, 3% PF +10¢ in lieu of pd. hol. *q 10¢WF, 6% V & H, 3% PF. *r 4% WF, 20¢ PF. *s 5% W & PF, 4% VF 1% NC 1% JI, plus 6 PH. *t Inc. 10¢ WF. *u 10¢ WF, 1½% apprent. *v 1 drum; 2 drums, 2.93. *w 20¢ VF, 17½¢ PF 3% Prom., 12¢ W *x 2% VF. *y 10¢ H & W, 10¢ PF. *z 10¢ WF, 8¢ HP, 15¢ V & H. *A 15¢ WF, 15¢ PF, 20¢ BF. *B 7½¢ VP, 5¢ PF, 1½¢ Ed. F. *C 9¢ H & W & Ins., 7% V & H. *D 10¢ H & WF, 5¢ indus. prom. *E 8% WF, plus travel pay per diem. *F Plus $4 per day annuity contrib. *G 10¢ WF, 10¢ VF, 3¢ prom. *H 10¢ WF, 10¢ VP, 3% PF, 2% PH. *I 5¢ H & WF, 5¢ advtg. *J 4% WF, 6 PH, 3% PF. *K 25¢ W & PF, 15¢ VF, plus 6¢ misc. *L 3% WF, 3% PF, 3% VF, 1% Ed. F. *M 10½¢ WF, 7½¢ PF. *N 1% PF. *O 10¢ WF, 1% NECA, 3¢ AF. *P 10¢ H Ins., 7½¢ PF, 5¢ VF. *Q 2 drums; 1 drum $3.10 ,3.25+10¢ WF. *R 10¢ H & WF, 2¢ admin. 1¢ apprent. *S 10¢ H & WF, 15¢ PF. *T H & W, VF. *U 10¢ WF, 15½¢ VF, 1¢ PF, 5¢ Ind. F. *V 4% WF, 4% PF. *W 7½¢ WF, 1½¢ Ed. F. *X 7½¢ WF, 15¢ VF, 3½¢ PF. *aa 7¢ WF, 15¢ PF. *bb 8¢ WF 2¢ advg. *dd 17½¢ WF, 20¢ PF, 10¢ PH, 5¢ Jt Bd. *ff 10¢ H & W, 5¢ PF. *gg 10¢ ins. *hh 7½¢ H & WF, 5¢ indus. prom. *ii 4% WF, 4% PF, 6 PH. *jj 2% VF. *kk 10¢ HW, 10¢P, 1½¢ AF. *ll 10¢ HW, 10¢ PF, 5¢ Trust F, 5¢ Trade Prom. *mm 10¢ W, 20¢ PF, 2½¢ Gen. Ben.

NEW! AIRESEARCH CONTROL SYSTEM SUPER-TURBOCHARGES CATERPILLAR DW20 AND DW21 TRACTORS







New AiResearch Pressure Ratio Controls *substantially increase lugging ability and travel speed* of Caterpillar DW20 and DW21 Wheel Tractors equipped with AiResearch T-15 Turbochargers.

The new control unit more than doubles the torque rise, giving the tractor greater lugging ability when operating under heavy loads. Accurate control of turbocharger speed over a wide range allows the engine to operate efficiently regardless of its changing load requirements.

This further improves other performance characteristics: *decreases specific fuel consumption ... improves acceleration ... provides cooler engine operating temperatures ... reduces smoking.* The improved air induction system also provides equal rimpull for the new DW20 and DW21 at *10% higher* travel speeds.

The two components of the new AiResearch Pressure Ratio Control unit are a pressure ratio sensor and exhaust by-pass valve. They allow the turbocharger to operate at maximum boost pressure over a wide range of engine speeds and operating conditions, thus maintaining turbocharger speed, and hence engine air input, at higher levels while lugging. This improves the overall performance match of a free-floating turbocharger.

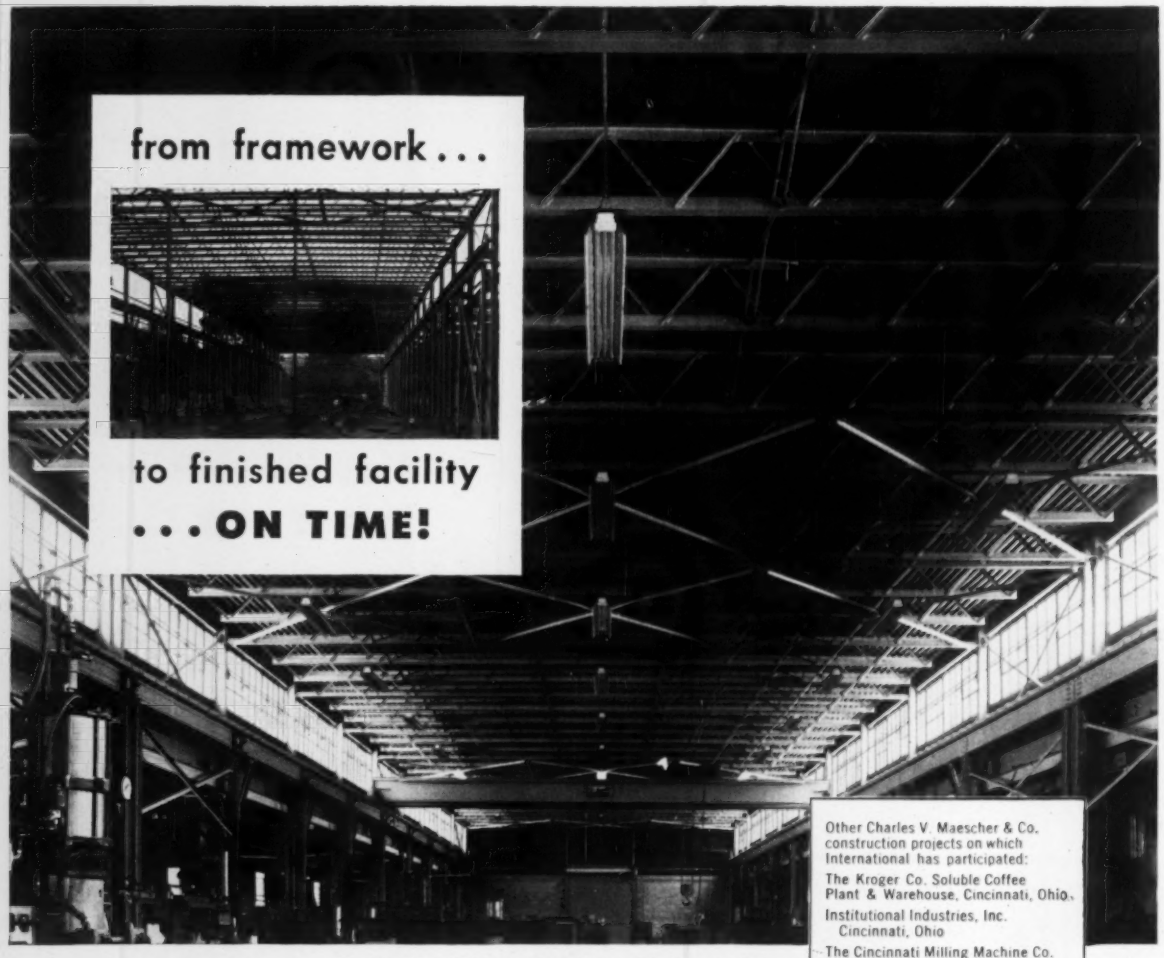
Your inquiries are invited.

THE GARRETT CORPORATION

AiResearch Industrial Division

9225 South Aviation Blvd., Los Angeles 45, California

DESIGNERS AND MANUFACTURERS OF TURBOCHARGERS AND SPECIALIZED INDUSTRIAL PRODUCTS



Other Charles V. Maescher & Co. construction projects on which International has participated:

The Kroger Co. Soluble Coffee Plant & Warehouse, Cincinnati, Ohio.

Institutional Industries, Inc. Cincinnati, Ohio

The Cincinnati Milling Machine Co. Cincinnati, Ohio

The U. S. Rubber Co. Cincinnati, Ohio

Precision Welder & Flexo Press—Cincinnati, Ohio

CHARLES V. MAESCHER & CO., INC.

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To stay on schedule on construction projects calls for extremely close liaison between contractor and supplier. Because teamwork is so important, performance is the guide used by contractors to form continuing associations with suppliers who produce as promised. International Steel's proved ability to deliver structural steel . . . fabricated right and right on schedule . . . has made for a continuing association with Charles V. Maescher & Company — and with more and more builders all across the nation.

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This same fully integrated, performance-proved service is available to you — wherever you may be building. Why not make use of International Steel's experience and ability on your construction project involving special structural steel engineering and fabrication? Write for complete data on International Service.

INTERNATIONAL SERVICE

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, Reports
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

Conn., Groton—BA 9/2—Dpt. Utilities, 359 Thames St., West Side and Eastern Point sewage pumping stations and appurtenances, Contr. 1958-1. $200,000. Plans deposit $50. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., engrs. CD 7/8.

N. H., Concord—BA 9/5—City, PWD, City Hall, South End trunk sewer, asbestos cement pipe sewers and constr. underground sewage pumping station. $150,000. Plans deposit $10. Camp, Dresser & McKee, 6 Beacon St., Boston, Mass., engrs. CD 3/14/57.

Mass., Woburn—BA 9/8—City Supt. P. Wks., City Hall, Horn Pond trunk sewer. $100,000. Plans deposit $10.

BUILDINGS—BA

Mass., Amherst—DORMITORIES—BA 9/3—University of Mass., Alumni Assoc., 4 story, bsmnt. dormitory No. 16; 4 story dormitory No. 17. $400,000 each. Plans deposit $25 each. Louis W. Ross, 131 State St., Boston, Mass., archt.

Conn., Ridgefield—SCHOOL—BA 9/9—Sch. Bldg. Com., E. Ridge St., renovate East Ridge Bldg. for High School. $800,000. Plans deposit $50. Sherwood, Mills & Smith, 65 Broad St., Stamford, Conn., archts. CD 12/3/56.

N. H., Rochester—HOSPITAL—BA 9/11—Frisbie Memorial Hospital, Whitehall Rd., hospital addn. $500,000. Thomas M. James Co., 101 Newbury St., Boston, Mass., archt. CD 12/19/56.

▲ **Conn., Willimantic**—HOSPITAL—BA 9/29—Windham Community Memorial Hospital, 3 story South wing hospital addn. $1,300,000. Kiff, Colean, Voss & Souder, 101 Park Ave., New York, N. Y., archts. Wilcox & Erickson, 11 E. 44 St., New York, N. Y. engrs. CD 3/11.

HEAVY CONSTRUCTION—LB & CA

▲ **MAINE**—State Hy. Comn., Augusta, Bids opened 8/13,

Warren Brothers and W. H. Hinman, North Anson, Me., LB $1,064,197 (4 bidders), b. conc. road 19.006 mi. FA Proj. DF-01-5(3), Macwahoc.

Kenworthy & Taylor Inc., 11 Spalding St., Everett, Mass., LB $395,315 Est. $278,900, G-302 Contr. 4-electric dist. sys. at State House, BOSTON, MASS. Commonwealth of Mass., Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. Bids Aug. 15. CD 7/30.

C. DiMartino & Sons Inc., 86 Clare Ave., Hyde Park, Mass., LB $115,058 Est. $100,000, sewer laterals, Washington St., etc., GLOUCESTER, MASS. City, Dir. P. Wks., Poplar St., Gloucester, Mass. Whitman & Howard Inc., 89 Broad St., Boston, Mass., engrs.

VERMONT—State Dpt. Hys., State Office Bldg., Montpelier,

Vt.—**Burnett & Campbell**, RFD 2, Burlington, Vt. LB $294,935. grade, etc. incl. 3 span composite WF beam bridge US Rte. 7, the Charlotte-Vergennes Rd. beginning approx. 0.568 mi. northerly of the Vergennes-Ferrisburg Town line and extend. northerly 1.288 mi. Proj. DF 019-4 (4), Ferrisburg. Bids Aug. 15. CD 8/1.

VERMONT—State Dpt. Hys. State House, Montpelier, **Caledonia Sand & Gravel Co., Inc.**, 26 Railroad St., St. Johnsbury, Vt. CA $534,566. grade, etc. and 1 span concrete T beam bridge Vt. Rte. 105A, the North Troy-Richford Rd. Proj. F 034-2 (1), Jay and Richford. Bids Aug. 8. CD 8/14, under LB.

▲ **McLean-Grove & Co., Inc.**, 400 Madison Ave., New York, N. Y., CA $5,783,943, Est. $6,000,000. Contr. 206, Section 5, South Charles Relief Sewer, Brighton-Roxbury and Brookline, BOSTON, MASS. Commonwealth of Mass., Metropolitan Dist. Comn., Constr. Div., 20 Somerset St., Boston, Mass. Bids July 17. CD 7/22, under LB.

BUILDINGS—LB & CA

St. Mary's of the Visitation Parish, c/o Bishop of Portland, 307 Congress St., Portland, Me., rejected bids Aug. 14, church, $350,000. HOULTON, ME. Will re-advertise. CD 8/5.

Realty Constr. & Engineering Inc., 303 Salem St., Reading, Mass., Separate Contracts, $800,000, RESIDENTIAL DEVELOPMENT, Mountain Ave., Tower Rd. and Greeley Circle, ARLINGTON, MASS.

Gilbane Bldg. Co., 90 Calverly St., Providence, R. I., CA Est. $200,000, Punch Card MANUFACTURING PLANT, WEST CONCORD, MASS. International Business Machines Corp., Supplies Div., 590 Madison Ave., New York, N. Y. Bids Aug. 12. CD 8/12.

▲ **Abner Rosenberg**, Inwood Rd., Woodbridge, Conn., owner builds $1,500,000 150 HOUSES, BETHEL, CONN. CD 7/31.

▲ **Park Forest Development Corp.**, 141 North Ave., Bridgeport, Conn., owner builds. $2,170,000. 217 HOUSES, "Park Forest", Main St., BRIDGEPORT, CONN. H. K. Gatley, 164 State St., Bridgeport, Conn., engr.

▲ **Harry K. Broadsen**, 617 Shennecossett Rd., Groton, Conn., owner builds, $1,870,000 187 HOUSES, Poquonoc Rd., GROTON, CONN., Chandler & Palmer, 104 Thayer Bldg., New London, Conn., archts. CD 4/10/56.

▲ **Fox & Co.**, 960 Main St., Hartford, Conn., cancelled bids to have been opened Aug. 12, for department STORE, addn. bridge over street, HARTFORD, CONN. $5,000,000. Will readvertise. CD 7/23.

▲ **G. Fox & Co.**, 960 Main St., Hartford, Conn., cancelled bids to have been opened Aug. 12, for storage WAREHOUSE, addn. Talcott St., HARTFORD, CONN. $300,000. Will readvertise. CD 7/23.

▲ **Abner Rosenberg**, Inwood Road, Woodbridge, Conn., owner builds. $2,000,000, 200 HOUSES. WALLINGFORD, CONN. CD 7/31/58.

Terminal Warehouse Constr. Inc., 171 State St., Bridgeport, Conn., CA $100,000. 1 story, 20,000 sq. ft. WAREHOUSE, 899 Bridgeport Ave., MILFORD, CONN. Canada Dry Ginger Ale, Inc., 100 Park Ave., New York, N. Y., awarded Aug. 14. CD 7/30.

Robert O. Banks, Sturgis Ridge Road, Wilton, Conn., CA $120,000, 1 story, steel, cement block, brick veneer, mfg. PLANT, RIDGEFIELD, CONN. Ullman Products Corp., 15 River St., Norwalk, Conn. Van Summern & Weigold, 366 Madison Ave., New York, N. Y., archts. Awarded Aug. 14.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

New York-New Jersey—PARKING AREA—BA 9/2—Port of New York Auth., 111 Eighth Ave., New York, Zone 11, extension of Lincoln Tunnel Parking area in North Bergen, N J Contr. LT-190.002. CD 1/18/54.

New York—BA 9/2—President, Boro of Richmond, Boro Hall, St. George, S.I Zone 1, b. conc. repaving on repaired concrete base roadway of Amboy Rd. from Huguenot to Sequine Aves. Bids Aug. 13 rejected. CD 8/8.

Pa., Phila.—FIRE HOUSE AIR FREIGHT BLDG.—BA 9/5—Dpt. Procurement City Hall Annex, modification to fire house air freight bldg. general constr. Phila. International Airport. CD 12/5.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

N. J., Waldwick—BA 9/8—Borough, Borough Hall, well house, Saddle River Well, and Malcolm St. Well No. 4 alterations, incl. electrical work, $44,000, Howard L. Boswell, 6 Morningside Lane, Ridgefield Park, boro engr. CD 7/10/57.

▲† **Pennsylvania**—BA about 9/18—U. S. Eng., P.O. Box 8629, Phila. Zone 1, removing and disposing 217,600 cu. yd. solid rock, Delaware River, Mud Island Range, opposite Poquessing Creek, Torresdale. Inv. ENG-36-109-59-3. CD 9/10, under New Jersey and Pennsylvania.

New York—BA 9/11—Power Authority of State of New York, The Coliseum Tower, 10 Columbus Circle, New York 19, furnishing and delivery of twenty-six 100-ton capacity intake gate joists complete with appurtenances for Lewiston Power Plant, Niagara Contract No. NP 25, Spec. No. PA-N 23013. Plans deposit $10. Uhl, Hall & Rich, 230 Congress St., Boston 10, Mass., engrs. CD 8/15.

BUILDINGS—BA

▲ **Pa., Phila.**—RESEARCH BLDG.—BA 9/3—Women's Medical College of Pa., Henry Ave. and Abbotsford Rd., research bldg. $1,000,000. Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago, Ill., archts.-engrs. CD 8/26/57.

▲ **Pa., Cornwells Heights**—SCHOOL—BA 9/5—Bensalem Twp. School Auth., Cecelia Snyder Junior High School. $2,300,000. Plans deposit $100. general. $50 each others. Everett Assocs., 512 Hamilton St., Allentown archts., Paul T. Frankenfield, 512 Hamilton St., Allentown, engr. CD 3/14.

▲ **Pa., Phila.**—NURSES HOME—BA 9/9—George M. Ewing Co., archt.-engr., Western Savings Fund Bldg., nurses home for Jefferson Hospital 10th and Sansom Sts. $1,500,000. Plans deposit $60. CD 5/6.

HEAVY CONSTRUCTION—LB & CA

▲ **DELAWARE**—State Hy. Dpt., Hy. Admin. Bldg., Dover. Bids opened Aug. 13,

Del.—**Wilson Contracting Co.**, Dupont Blvd. and State Rd., New Castle, LB $777,778 (4 bidders) for Constr. addn. traffic lane along Route 14, or the Rehoboth Highway, at Milford, to a point south of Frederica, 4.45 mi. Kent Co.;

Del.—**Slater and Rogers, Seaford**, LB $305,840 (9 bidders) for widening and resurf. highway from Leipsic to Smyrna 5.89 mi. Kent Co. CD 8/14.

▲ **Arthur A. Johnson Corp.** and **Peter Kiewit Sons Co.**, 347 Madison Ave., New York 17, N. Y., LB $8,944,117 (6 bidders), Route 112, Section 3 extending under and along Chrystie St., private property and East Houston St., Stanton to Lafayette Sts., Manhattan Boro, NEW YORK, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, N. Y. Bids Aug. 15. CD 7/11.

▲ **NEW JERSEY**—State Hy. Dpt., Kenneth D. Rice, secy., 1035 Parkway Ave., Trenton,

N. J.—**Franklin Contg. Co., Inc.**, Rte. 46, Little Falls, N. J., CA $4,106,170, West and East viaduct crossings of Raritan River, Rte. 104, Sections IA and 2A, Middlesex and Somerset Counties. Bids July 29. Awarded Aug. 15. CD 7/30, under LB.

▲ **PENNSYLVANIA**—Pa. Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,

Allegheny Contracting Industries Inc., 801 Bingham St., Pittsburgh, Pa. CA $3,393,119. constr. 28,577 ft. divided hy. of rein.-c. conc. 24 ft. wide each side 56 ft. divisor; 5 grade separations, Proj. 803-1 FAI, section Erie Thruway, McKean and Summit Twps. Erie Co. Bids June 27. CD 7/2, under LB.

▲ **PENNSYLVANIA** — Pa. Hy. Dpt., 506 North Office Bldg., Harrisburg, bids opened 8/15,

Pa.—**Ralph V. Daniels Inc.**, R. D. 1, Mechanicsburg, Pa. LB $375,892. 22,819 ft. crushed aggreg. base with bit. surf. 22 ft. wide. L. R. 21027 (3) 21017 (3) Monroe, Upper Allen Twps., Mechanicsburg Boro, Cumberland Co.; LB $85,709 (6 bidders) 3,694 ft. crushed aggreg. base with bit. surf. variable in width. L. R. 21098 (1) U. Allen Twp. Mechanicsburg Boro., Cumberland Co.,

▲ **PENNSYLVANIA**—Pa. Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,

Kaufman Constr. Co., Inc., 4000 Pulaski Ave., Phila. 40, Pa. CA $1,675,383. 2,120 ft. depressed hy. rein.-c. conc. base course with bit. surf. 22 ft. wide each side divisor 26th St. Underpass at Passayunk Ave. (Proj. 823-1) FAI, Phila. Phila. Co. Bids July 25, awarded Aug. 15. CD 7/29, under LB.

BUILDINGS—LB & CA

Wigton-Abbott Corp., 1225 South Ave., Plainfield, N. J., CA Est. $160,000, design and construct HEADQUARTERS BUILDING, 150 Granite Ave., MARINER'S HARBOR, N. Y. Wallerstein Co., Inc., 125 Lake Ave., Mariner's Harbor, N. Y.

▲ **Stoffler & Tillotson**, 49 and Haverford Ave., Phila., Pa., LB $3,668,000 (7 bidders) Wilmington Senior High School, Lancaster Ave., Dupont Rd., WILMINGTON, DEL. Bd. P. Educ., 511 West 8th St., Wilmington, Del. Bids Aug. 20. CD 7/28.

BUILDINGS—LB & CA

▲ **Riesinger Bros.,** East North St. Extn., Carlisle, Pa. LB **$1,268,000.** general constr. HIGH SCHOOL bldg. for Greencastle Antrim Jt. School Dist., GREENCASTLE, PA. Greencastle-Antrim Jt. School Auth., High School Bldg., Greencastle, Pa. Bids Aug. 13. CD 8/4.

V. **Cotti & Sons Inc.,** 3100 Banksville Rd., Pittsburgh, Pa. LB **$154,830.** substation for State Police on Washington Blvd., PITTSBURGH, PA. Pa. Dpt. Property & Supplies, Box 382, Harrisburg, Pa. Bids Aug. 13. CD 8/4.

▲ **Wilaka Constr. Co., Inc.,** 11 E. 44th St., New York 17, N. Y. LB **$1,834,000** (7 bidders), general construction, PUBLIC SCHOOL 28, St. Nicholas and Amsterdam Aves. W., 155 and W. 156 Sts., NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Aug. 13. CD 7/21.

E. W. **Howell Co.,** 305 Deer Park Ave., Babylon, N. Y., CA **$422,745,** 3 COTTAGES and alterations, addns. to existing faculties at Wayside Home for Girls on Dutch Broadway, VALLEY STREAM, N. Y. Salvation Army, 120 W. 14th St., New York, Zone 11, N. Y. Bids June 11. CD 5/27.

▲ **A. P. Orleans Co.,** 100 W. Rockland St., Phila. Pa. Separate Contracts. **$3,500,000.** 200 RESIDENTIAL DEVELOPMENT, Fitzwatertown Rd., etc. FORT WASHINGTON, PA.

▲ **Joseph A. Girsh,** Hatboro, Pa. Separate Contracts. **$2,000,000.** RESIDENTIAL DEVELOPMENT, Horsham Rd., etc. HORSHAM, PA.

Carrcraft Development Co., 1530 Faulk Rd., Wilmington, Del., separate contracts, RESIDENTIAL DEVELOPMENT, Carrcraft Crest, WILMINGTON, DEL. **$350,000.**

Graylyn Constr. Co., 1530 Faulk Rd., Wilmington, Del., separate contracts, RESIDENTIAL DEVELOPMENT, 35 Graylyn Crest. WILMINGTON, DEL. **$488,000.**

SOUTH

HEAVY CONSTRUCTION—BA

† **Fla., Cocoa**—SPRINKLER SYS.—BA 9/8—Procurement Office USA Air Force Missile Test Center, IFB-08-606-59-31, modify sprinkler sys. bldgs. 985 and 986, Patrick Air Force Base. CD 8/23/56.

† **Mississippi**—BA 9/12—Soil Conservation Service, Dpt. Agriculture, P.O. Box 610, Jackson, Miss., water retarding dam, Little Tallahatchie River Watershed 6 mi. southeast of Ripley, Tippah Co. Bid No. SCS 7-MS-59.

† **Georgia**—BA about 9/17—U. S. Eng., 200 E. St. Julian St., Savannah, channel dredging, land cut-offs, bank protection works Savannah River below Augusta, Savannah Dist., CIVENG-09-133-59-2. CD 9/9/57.

▲† **Tenn., Tullahoma**—PLENUM EVACUATION SYSTEM BA 9/18—U. S. Eng., Tullahoma, constr. second increment plenum evacuation sys. for the propulsion wind tunnel at Arnold Engineering Development Center, this will suck out shock waves to achieve a true picture of windflow around the test object. $6,000,000-$7,000,000. CD 6/24.

† **Ala., Huntsville**—HARDSTANDS, etc.—BA about 9/23—U. S. Eng., 2301 Grant St., Mobile, constr. hardstands and utilities in class and training areas at Redstone Arsenal. Eng 01-076-59-14.

▲† **Florida**—BA about 9/23—U. S. Eng., P.O. Box 4970, Jacksonville, excavation, 3,600,000 cu. yd. enlarging Wabasso to Ft. Pierce reach Intercoastal Waterway from existing channel 100 ft. wide, 8 ft. deep to project dimension of 125 ft. wide, 12 ft. deep, Intercoastal Waterway, Jacksonville to Miami, Fla. CD 9/6/57.

▲† **Florida**—BA 9/23—U. S. Eng., Box 4970, Jacksonville, constr. levee 39, and structure 10, 3 spillways, A, C, and in Levee 39, Central and Southern Florida Flood Control Proj. No. CIVENG-08-123-59-11. CD 9/6/57.

† **Ga., Brunswick**—SWIMMING POOL—BA 9/25—Dist. P. Wks. Office, Sixth Naval Dist., U. S. Naval Base, Charleston, S. C., E. M. swimming pool U. S. Naval Air Station Glynco, Ga., $25,000-$100,000 NBy-21098 Spec. 21090-58.

Fla., Fort Lauderdale—BA 9/29—City, City Hall, Proj. No. 630 First Addition to Fiveash Water Treatment Plant, Project 630. Plans deposit $25. adv. ENR. 8/28. CD 8/19.

BUILDINGS—BA

Ala., Union Springs—PLANT—BA 9/4—Bullock County Development Auth., Courthouse, poultry processing plant for lease. Plans deposit $15. Morton & McElhaney, 239 Dexter Ave., Montgomery, archts. CD 8/6.

Fla., St. Petersburg—MANUFACTURING BLDG.—BA 9/5—Electronics Communication Inc., and Bail Horton & Assocs., archts., Box 310, Fort Myers, Fla., selected list of bidders, 1 story, and mezz. 330x420 CB manufacturing bldg., NE 72 St.

Fla., Jacksonville—CITY HALL—BA 9/4—City Commission City Hall, 225,000 sq. ft. city hall. Plans deposit $130. Reynolds, Smith & Hills 227 Park St., Jacksonville archts. CD 5/24/56.

▲ **W. Va., Clarksburg**—HOSPITAL—BA 9/18—Union Protestant Hospital, 140 Washington Ave. (selected list of bidders) hospital, $3,000,000. C. E. Silling & Assocs., Masonic Temple Bldg., Charleston, Zone 1, archts.

W. Va., Green Bank—LABORATORY AND RESIDENCE HALL—BA 9/23—Associated Universities, Inc., 10 Columbus Circle, New York, N. Y., laboratory and residence hall, Radio Astronomy Project, $875,000, Irving Bowman & Assocs., Davidson Bldg., Charleston, Zone 1, archts.

BUILDINGS—LB & CA

† **C. J. Langenfelder & Son, Inc.,** 8427 Pulaski Hy., Baltimore, Md. LB **$466,000.** (14 bidders), clearing, grubbing and demolition of structures on 8,200 acres Washington International Airport in Fairfax and Loudoun Counties, Inv. 9-3034-B1 CHANTILLY, VA. Civil Aeronautics Admin., Dpt. Commerce, Tempo 5, 16th and Constitution Ave. N.W., Wash. D. C. Bids Aug. 15. CD 7/30.

▲ **WEST VIRGINIA**—State Rd. Comn., Charleston, Zone 5.

Keeley Constr. Co., Box 208, Clarksburg, W. Va. and **Mountain State Constr. Co.,** Box 296, Spring Hill, W. Va., CA **$1,595,946,** grading, drainage, cement con. pavement and bridges, Proj. I-70-1 (7) 1 and F 203 (14), Ohio Co. Bids July 29, Awarded Aug. 14. CD 8/1, under LB.

City, City Hall, Own Forces. 1958 street paving, **$150,000.** ALBANY, GA. CD 6/9/54.

Boyle Constr. Co., E. Liberty St., Sumter, S. C. CA **$247,450,** Inv. ENG-09-603-58-10, grading, storm drainage, water sys., etc., Robins Air Force Base, MARIETTA, GA. Purchasing & Construction Office, Robins Air Force Base, Ga. CD 8/23/56.

J. I. Newton Co., 215 S. Mill Ave., Bartow, Fla. LB **$86,588,** sewer lines, force mains, etc., BOCA RATON, FLA., City, City Hall, Boca Raton, Fla. Bids Aug. 12. CD 7/29.

Barbarossa Constr. Co., 1751 S. E. 17 St., Fort Lauderdale, Fla., LB **$84,101,** sewer and pumping station, Area D, FORT LAUDERDALE, FLA. City, City Hall, Fort Lauderdale, Fla. Bids Aug. 13. CD 8/12.

▲ **Satchwell Electric Constr. Co.,** 2922 Old St., Augusta Rd., Jacksonville, Fla. CA **$1,153,560.** Complex 29, Navy Fleet Ballistic Missle Facilities, contractors storage and shop building and associated facilities, incl. rein.-con. blockhouse, rein.-con. utility trench from blockhouse, launching pad, Pad Service Building, equipment and telemetry addn. to Missile Building "V" at Cape Canaveral Missile Test Annex, Patrick Air Force Base, COCOA, FLA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. CD 4/23.

E. C. "Red" Cornelius, 3600 N. W. 48 St., Miami, Fla. CA **$110,040.** electrical sys. alterations, addns., Jackson Memorial Hospital, MIAMI, FLA. Comrs. Dade Co., Court House, Miami, Fla. Bids July 1. CD 6/19.

LOUISIANA—State Dpt. Hys., Hy. Office Bldg., Baton Rouge, cancelled bids to have been opened Aug. 20, aggreg. type base course, bit. mixture for hot application 0.727 mi. Streets in Morgan City, SP No. 714-04-69, St. Mary Parish. Will re-advertise. CD 8/7.

▲ **Herbert Brothers,** Box 448, Plaquemine, La. CA **$1,833,250.** water distr. sys., NAPOLEONVILLE, LA. Parish Police Jury, Waterworks Dist. No. 1, Napoleonville, La. Bids July 10. CD 7/21, under LB.

BUILDINGS—LB & CA

▲ **Abner Rosenberg,** Inwood Rd., Woodbridge, Conn. Owner Builds. **$4,400,000.** 200 HOUSES, ALEXANDRIA, VA. Ryder, Struppmann & Newman, 96-04 121 St., Jamaica, N. Y., archts.

▲ **Rust Engrg. Co.,** 2316 4th Ave. N., Birmingham, Ala. CA **$1,500,000.** GAS PLANT to mfg. propane, Sayreton, BIRMINGHAM, ALA. Alabama Gas Corp., 1918 1st Ave. N., Birmingham, Ala. CD 12/20.

▲ **Gilson Constr. Co.,** New Circle Rd., Lexington, Ky. CA **$1,076,800.** (A) four DORMITORIES (B) College Office Bldg. addn., LEXINGTON, KY. College of the Bible, S. Limestone St., Lexington, Ky. Bids Aug. 5. CD 8/7, under LB.

▲† **Eugene Simpson & Brother,** 300 Montgomery Ave., Alexandria, Va. CA **$3,861,017** constr. YOUTH CORRECTIONAL CENTER bldgs. underground utilities and site work LORTON, VA. D. C. Govt., Dpt. Bldgs. & Grounds, Room 404, 499 Pa. Ave. N. W., Wash., D. C. Bids July 31. CD 8/7, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **WISCONSIN**—BA 9/16—State Hy. Comn., State Office Bldg., Madison,

Milwaukee Co.—structures B-40-49 and B-40-50, East-West Expressway (Stadium Interchange, Eastbound and Westbound Viaducts), Interstate Hy. 94, Contr. 1, Proj. IN-94-4(17)306. Plans deposit $10. CD 12/9.

▲† **O., Oberlin**—TRAFFIC CONTROL CENTER—BA 10/3—General Services Administration, Court House, 219 S. Clark St., Chicago, Ill., air route traffic control center for Civil Aeronautics Administration, $1,000,000. Thos. B. Bourne Assoc., Inc., DuPont Circle Bldg., Washington, D. C., archt. CD 8/13.

BUILDINGS—BA

† **Ill., Great Lakes**—CARRIER COMPARTMENTS—BA 8/29—Dist. Pub. Wks. Office, Ninth Naval Dist., Bldg. 1-A, Naval Training Center, rehabilitation of carrier compartments at F.F.T.U. Bldg. 3304-B, Spec. 14821/58. Under $25,000. CD 9/16.

Ind., Gary—SCHOOL—BA 9/9—School, City of Gary, 10 Place and Virginia Ave., Tolleston High School addn., 17th and Taney Sts., $400,000. Leonard J. Klarich, 125 W. 5 Ave., archt. CD 2/11.

HEAVY CONSTRUCTION—LB & CA

▲ **Collier Constr. Co.,** 15650 Pearl Rd., Strongsville, O., CA **$1,500,000.** installation of 450,000 KW GENERATING STATION on Wabash River, Fairbanks, INDIANA, Indiana & Michigan Electric Co., Div. American Electric Power Service Corp., 2101 Spy Run Ave., Fort Wayne, Ind.

▲ **Contracting & Material Co.,** 1235 Dodge, Evanston, Ill. and **Kenny Constr. Co.,** 3220 Oakton, Skokie, Ill. LB **$735,307.** 95th and South Route Expressway Grade Separation, LB **$558,206,** 87th and South Route Expressway Grade Separation; LB **$492,659,** 83 St. and South Route Expressway Grade Separation; LB **$578,856,** 79th St. and South Route Expressway Grade Separation, CHICAGO, ILL. Cook County Bd. Comm., County Bldg., Chicago 2, Ill. Hugo Stark, 130 N. Wells, Chicago 6, Ill., engr. Bids Aug. 12. CD 8/4; **Superior Concrete Constr. Co.,** 4649 S. Bennett, Chicago, Ill. LB **$450,902,** 71st St. and South Route Expressway Grade Separation; LB **$486,190,** 75th St. and South Route Expressway Grade Separation; LB **$408,449.** 76 St. and South Route Expressway Grade Separation (Chicago, Ill.).

▲† **Lane Constr. Corp.,** 965 E. Main St., Meriden, Conn., CA **$10,806,266.** airfield pavements, lighting and fuel facilities, Wurtsmith Air Force Base, ENG-20-064-58-66, OSCODA, MICH. U. S. Eng., 600 E. Jefferson St., Detroit, Mich. Bids July 15. CD 7/18, under LB.

† **E. M. Redington Co.,** rear 322 S. Wittenburg St. Springfield, O. LB **$760,364,** est. $826,093. (15 bidders) two 3 story airmens DORMITORIES, Clinton County Air Force Base, WILMINGTON, O. U. S. Eng., Box 2127, Huntington Zone 18, West Va. Bids Aug. 13. CD 7/14.

BUILDINGS—LB & CA

Kleinfeld Constr. Co., 5822 N. Western, Chicago, Ill. LB **$670,410.** 3 story, limestone and alum. curt. wall, RESIDENCE HALL and site imprv. CHICAGO, ILL. St. Xavier Academy, 103 and Central Park, Chicago, Ill. Bids Aug. 14. CD 7/29.

▲ **Schorsch Bros.,** 6059 W. Irving Park Rd., Chicago, Ill. Own forces **$3,000,000.** 200 HOMES, Montrose and River Rds., Agatite, Brodman Reserve, Potowatomie and Forestview CHICAGO, ILL. Otto Monberg, 3306 N. Newland Avee., Chicago, Ill., archt.

▲ **Red Seal Homes, Inc.,** 2949 W. Touhy Ave., Chicago, Ill., Own forces **$2,480,000.** 80 HOMES, 1000 and 1100 blocks on Kenton Rd. DEERFIELD, ILL.

▲ **Dorchester Homes,** 15401 S. Dorchester, Dolton, Ill. Own forces **$1,250,000.** 90 HOMES, 154 St. and Dorchester DOLTON, ILL.

▲ **Sholz Homes, Inc.,** 2001 N. Westward St., Toledo, O. CA **$1,000,000.** 60 HOMES, Sugar Creek Subd. JOLIET, ILL. Sugar Creek Woods Realty Co., Lantern Lane, Joliet, Ill.

▲ **Custom Line Builders Corp.,** 4761 Touhy Ave., Lincolnwood, Ill. Own forces **$1,625,000.** 65 HOMES, Libertyville Highlands and Thornbury Village Estates, LIBERTYVILLE, ILL.

▲ **Mercury Builders,** 761 S. Harlem Ave., Forest Park, Ill., CA **$1,580,086.** 1, 2 and 4 story, 104,000 sq. ft. Lake County INFIRMARY, State Rd. 55, near here, CROWN POINT, IND., Lake Co. Bd. Comm., Crown Point, Ind. Bids June 30. CD 8/8, under LB.

▲ **Peter Schumaker & Sons,** P. O. Box 375, Mishawaka, Ind., CA **$2,500,000.** Parochial High SCHOOL, priests home and convent, 61st and Broadway, GARY, IND., Gary Deanery of Roman Catholic Church, 501 Ridge Rd., Gary, Ind. Bids June 12. CD 6/2.

Mercury Builders, 761 S. Harlem St., Foreset Park, Ill., LB **$859,371.** general contract, 100 x 500 ft., 76 units HOTEL, Swimming pool and paving, HAMMOND, IND., West Point Hotel, 9856 Revere Court, Munster, Ind. Bids Aug. 12. CD 8/6.

▲ **Power Constr. Co.,** 125 S. Marion St., Oak Park, Ill., LB **$1,500,000.** HIGH SCHOOL, CHAPEL, CONVENT & LIBRARY, Nobel St. at Potomac St. CHICAGO, ILL. St. Stanislaus Kostka Parish, 1351 W. Evergreen St., Chicago, Ill. Bids July 29. CD 7/18.

▲ **Ruby Constr. Co.,** 5528 N. Western Ave., Chicago, Ill. CA **$2,000,000.** 16 unit SHOPPING CENTER, paving, SW corner Howard and Western Ave., CHICAGO, ILL. Howard-Western Properties c/o M. Dreyfus, 228 N. LaSalle St., Chicago, Ill. CD 8/1/57.

Priester Constr. Co., 1117 Davenport Bank Bldg., Davenport, Iowa, CA est. **$750,000.** 240 x 320 ft. PLANT ADDITION, 25th St., MOLINE, ILL., American Air Filter Co. Inc., 215 Central Ave. Louisville 8, Ky., L. G. Soenke, 1124 Davenport Bank Bldg., Davenport, Iowa, archt., Beling Engr. Consultants, 307 16th St., Moline, Ill., engrs. CD 6/11.

▲ **North Glen Home Builders Inc.,** 1200 S. Neltnore, West Chicago. Own forces **$3,100,000.** 195 HOMES, Oak St., Gates St., 1200 S. Neltnore, and Bayton St. WEST CHICAGO, ILL.

L. G. Arnold, Inc., 201½ N. Dewey St., Eau Claire, Wis., CA **$515,000.** POWER PLANT addn., Unit No. 5, Alma, WISCONSIN, Dairyland Power Coop., 2615 East Ave. S., La Crosse, Wis. Bids July 26. CD 8/12, under LB.

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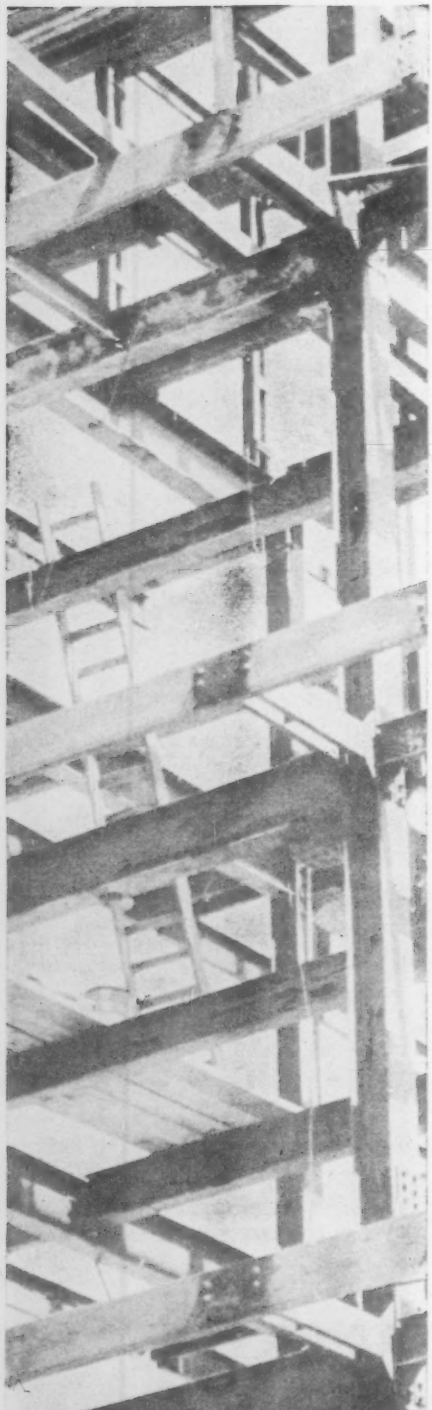
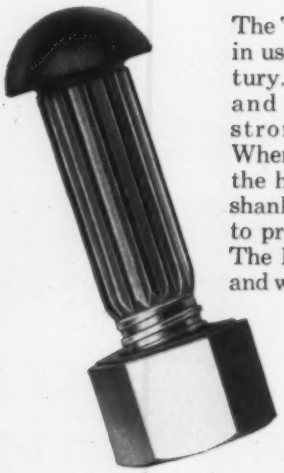
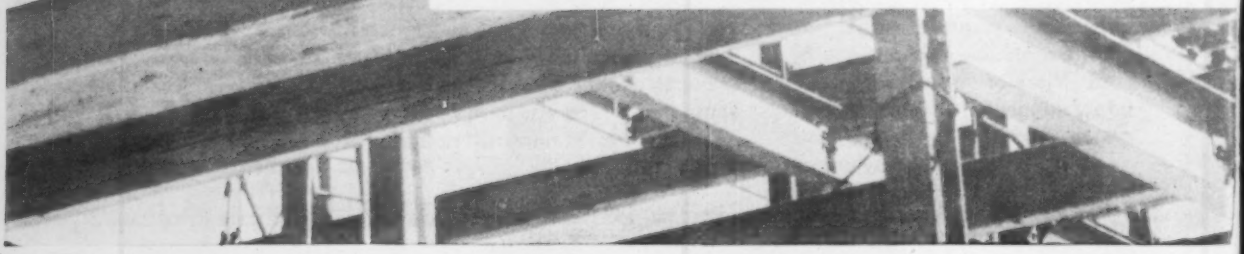


LAMSON
Dardelet Rivet Bolt



The "original" structural bolt in use for over a quarter century. It requires only a maul and wrench to produce a strong, tight connection. When the bolt is driven into the hole, the oversize ribbed shank splines are deformed to provide a body-bound fit. The Dardelet nut is spun on and when tightened, the locking threads of the nut and bolt provide a positive locked connection that can only be backed off with a wrench. No washer is required.

These Lamson structural fasteners are distributed by 18 United States Steel Supply Division Steel Service Centers in key locations throughout the country.



all three top performing structural bolts and nuts

LAMSON
High-Strength Structural Bolt

The A-325 and three radial marks on the head are the identification that this high-carbon structural bolt meets or exceeds rigid ASTM specifications. The "L" on the head identifies it as a genuine Lamson & Sessions bolt. Always look for these identifying marks and you'll always be sure you are getting genuine ASTM approved structural fasteners. This bolt is used with two washers and a nut made of high carbon steel to ASTM requirements.

LAMSON
Structural Nut

This is the nut that is used with both the Lamson High-Strength Bolt and the Lamson High-Tensile Bearing Bolt. The three long indented arcs on each end of the nut indicate that it meets or exceeds ASTM specifications. The short dashes inbetween the arcs identify it as a genuine Lamson nut.

LAMSON High-Tensile Bearing Bolt

This new bolt assembly, made to ASTM A-325 specifications, is superior to, yet costs no more than Standard High-Tensile or Dardelet Structural assemblies. It is particularly well adapted for use in structures subject to dynamic or reversed stress loading and can be readily assembled by one man with conventional tools and equipment. It has high shear and bearing values because its knurled body fills the hole to make a joint in initial bearing. This body-bound feature, plus high strength characteristics eliminates the possibility of slip in joints and provides added rigidity and stability in the structural connection. Only one washer is required with the High-Tensile Bearing Bolt.

The Lamson & Sessions Co.

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Plants at Cleveland and Kent, Ohio • Chicago • Birmingham

L&S

▲ **Fred W. Entenman, Inc.**, 3323 Secor Rd., Toledo, O. CA **$2,598,034**, est. $3,750,000, HIGH SCHOOL and ELEMENTARY SCHOOL, TOLEDO, O. Washington Twp. Bd. Educ., 5700 Whitmer Dr., Toledo, O. Bids Aug. 7. Awarded Aug. 14. CD 7/17.

▲ **I. Bush & Son**, 4204 Brook St., Louisville, Ky., CA **$1,081,382**, general contract, William S. Major HOSPITAL addns., SHELBYVILLE, IND., Bd. Directors, Court Room, Shelby Co., Court House, Shelbyville, Ind. Bids Aug. 1. CD 7/14.

▲ **Barnes Constr. Co.**, 1310 Wallen N.W., Grand Rapids, Mich., CA **$1,336,000**, HIGH SCHOOL, TRAVERSE CITY, MICH. Bd. Educ., School Dist., Traverse City, Mich. Bids June 4. CD 6/23 under LB.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† **Minn., Duluth**—TAXIWAY—BA 9/11—Base Procurement Office, 343rd Fighter Group (ADEF) 510 Fidelity Bldg., Duluth, taxiway repair, Municipal Airport. Inv. No. 21-603-59-22; Proj. No. D-119-8 (Base). Melander, Fugelso & Assocs., 603 Alworth Bldg., Duluth, Minn., engrs. CD 3/20.

† **Montana**—BA 9/11—Bureau Reclamation, Dpt. Interior, Hungry Horse, furnish and installing snow shelters for entrances to camp residences approx. 8 mi. east of Columbia Falls, Flathead Co. Hungry Horse Proj. Spec. 100C-342. CD 9/24/52.

† **Texas**—BA 9/11—Soil Conservation Service, 1st National Bank Bldg., Temple, flood water retard structures with earthfill embankments, sites 5 and 6 Lower San Saba watershed of Middle Colorado River, Richland Springs, San Saba Co. SCS 27-TX-59. Harold R. Baker, P. O. Box 417, Temple, engr.

† **Minnesota**—BA About 9/11—U. S. Eng., 1217 U. S. Post Office and Custom House, St. Paul 1, Minn., apron replacement Sandy Lake Dam about 14 mi. north of McGregor, Aitkin Co., CIVENG-21-018-59-9.

Minn., Canton—BA 9/16—Village, Village Hall, sanitary sewers and sewage treatment plant. $75,000. Davy Eng. Co., 524 Main St., LaCrosse, Wis., engr. CD 7/10.

† **Tex., Mason Air Force Station**—UNMANNED GAP FILLER FACILITIES—BA 9/17—U. S. Eng., Box 1229, Galveston, unmanned gap filler facilities (TM-192A) Mason Air Force Station, ENG-41-443-58-81. CD 6/19, under LB.

† **Neb., Fort Crook**—BA 9/23—U. S. Eng., 1709 Jackson St., Omaha, Zone 2, constr. sanitary treatment and disposal, Offutt Air Force Base, ENG-25-066-59-15. $140,000-$180,000. CD 9/19.

BUILDINGS—BA

▲ **Minn., St. Cloud**—SCIENCE BLDG., etc.—BA 9/9—State Dpt. of Admin., 19 State Capitol, St. Paul, science and mathematics bldg., St. Cloud State College. **$1,150,000**. Plans deposit $50. Traynor & Hermanson, 311 Granite Exchange, St. Cloud, Minn., archts. CD 7/23.

Mo., Columbia — HOUSING — BA 9/16 — City Housing Auth., 16 Elvira Bldg., Columbia, Housing Proj. Mo. 7-1 incl. 68 dwelling units in 16 bldgs., 1 maintenance bldg. and site development Oak and Worley Sts. and McBaine Ave. $636,563. Plans deposit $50. E. E. Butler & Assocs., 14 Haden Bldg., Columbia, Mo., archts. CD 7/11.

HEAVY CONSTRUCTION—LB & CA

C. L. Stodolka, 704 First Ave. S.E., Little Falls, Minn., LB **$82,439**, county road proj., sand-grav. sub-base, grav. base and road mixed bit. surf. 5.6 mi. at and near Shevlin; 2.1 mi. at and near Shevlin, BAGLEY, MINN. Clearwater Co., Bagley, Minn. Bids Aug. 12. CD 7/23.

† **U. S. Eng.**, 1709 Jackson St., Omaha 2, Neb., cancelled bids to have been opened Aug. 7, ADC Ammo Storage area and alert hangar protection, Sioux City Air Force Base, ENG-25-066-59-6, SIOUX CITY, IOWA. $900,000-$975,000. CD 7/14.

Mork's Hardware & Electric Co., Clarkfield, Minn., LB **$222,082** (8 bidders) RURAL TELEPHONE LINES, 315 miles, Pembina, Cavalier and Towner Counties, NORTH DAKOTA. United Telephone Mutual Aid Corp., Langdon, N. D. Communication Consultants, Fargo, N. D., engrs. Bids Aug. 5.

BUILDINGS—LB & CA

▲ **Farnsworth & Chambers Co. Inc.**, 3601 Brock St., Box 74, Houston, Tex. LB **$1,927,000**. est. $2,000,000, 183 unit "Golden Age" HOUSING Center in 9 story and bsmnt. bldg. Tex. 6-18 SAN ANTONIO, TEX. San Antonio Housing Auth., 400 Labor St., San Antonio, Tex. Bids Aug. 14. CD 7/24..

▲ **Lippert Bros. Constr. Co.**, Boone, Iowa, CA Est. **$3,000,000** (7 bidders) 1st phase, DISTRIBUTION CENTER at 72nd and F Sts., OMAHA, NEB. Safeway Stores, Inc., 111 S. 46th St., Omaha, Neb. Bids July 31, awarded Aug. 11. CD 7/22.

▲ **Babcock & Wilcox Co.**, 1012 Baltimore Ave., Kansas City 5, Mo., CA furnishing and erecting 215,000 lb. boiler equip. for 22,000 KW power plant, HILL CITY, KAN. Grand total $5,676,000. The Central Kansas Power Co., 111 E. 11 St., Hays, Kan. Sunflower Electric Cooperative, Wakeeney, Kan., lessee. Black & Veatch, 1500 Meadow Lake Parkway, P.O. Box 8405, Kansas City 14, Mo., engrs., CD 3/20; General Electric Co., River Rd., Schenectady, N. Y., CA 22,000 KW turbo-generator for Power Plant (Hill City, Kan.).

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Calif., San Francisco**—BA 9/4—Pub. Utilities Comn., City Hall, Cherry Power House at Hetch Hetchy Proj. incl. two 93,000 kw. turbines installing transformers and penstocks, $6,250,000. CD 11/11/55.

▲ **Ore., Portland**—RECREATION CENTER—BA 10/8—Exhibition-Recreation Comn., Park Bldg., exposition recreation center. Extended date. Skidmore, Owings & Merrill, 2040 S. W. Jefferson St., archts. CD 7/23.

BUILDINGS—BA

Calif., La Puente—SCHOOL—BA 9/4—Rowland Union School Dist., 18613 E. Pacato Rd., Northam Elementary School. $863,105. Lee B. Kline & Assoc., 1741 Silverlake Blvd., Los Angeles, archt. CD 7/31.

† **Ariz., Fort Huachuca**—UTILITIES, etc.—BA 9/9—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., roads and utilities, E.M. Barracks Battalion mess admin. and storage bldg. $150,000. CD 8/30/56.

▲ **Calif., Torrance**—SCHOOL—BA 9/10—Torrance Unif. School Dist., constr. 3rd increment addn., South High School. $1,600,000. Extended date. CD 8/14.

▲ **Wash., Bellingham**—SCIENCE AND STUDENT UNION—BA 9/18—Western Washington College of Education, 4 story, 102,000 sq. ft. rein.-conc. science bldg., $2,300,000, extended date, Paul Thiry, 800 Columbia St., Seattle, archt., CD 7/16; 4 story, 27,000 sq. ft. rein.-conc. student union bldg. $480,000, Bissetti & Morse, Tower Bldg., Seattle, archts. CD 1/7. Plans deposit $50 each.

▲ **Calif., Salinas**—SCHOOL—BA 9/30—Salinas Union High School Dist., 431 W. Alisal St., 118,000 sq. ft. high school, North Salinas. $1,770,000. Plans deposit $100. Jerome Kasavan, 7 Winsham St., archt. CD 2/7/57.

▲ **Calif., San Francisco**—HALL OF JUSTICE—BA 11/5—City and San Francisco Co., Dpt. P. Wks., City Hall, general constr. contr., incl. plumbing, mechanical, electrical, air-conditioning, ventilation, 7 story and ground floor, 637,000 sq. ft. floor area, concrete structure with marble facing with an adjacent 1 story and roof deck parking structure bounded by 7th, Harriet, Bryant and Harrison Sts. $15,000,000. Plans deposit $300. Weihe, Frick & Kruse, 414 Mason St., San Francisco, archts. Hall, Pregnoff & Matheu, 251 Kearny St., mech. engrs. G. M. Simonson, 507 Howard St., electrical and mech. engr. CD 12/18/56.

HEAVY CONSTRUCTION—LB & CA

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles.

Oberg Constr. Corp., and **Oberg Bros.**, 401 W. Florence Ave., Inglewood, Calif. LB **$5,226,495** (10 bidders) 3.9 mi. 8 lane Ventura Freeway and 15 structures US Hy. 101 between Encino and Kelvin Aves., VIII-L.A.-2, LA. Los Angeles Co. CD 7/9.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento.

R. M. Price Constr. Co., 2285 Pine Crest Dr., Altadena, Calif. CA **$3,205,968**, 2,466 ft. long rein.-con. bridge over Yuba River, Western Pacific R.R. and 1st St. at E. St. in Marysville, providing for 4 lane divided hy. 111-Yuba-3-B, MV1. Yuba Co. Bids July 30. CD 8/1, under LB.

BUILDINGS—LB & CA

▲ **John E. Branagh & Son**, 42 La Salle Ave., Piedmont, Calif. LB **$1,546,500**. (7 bidders), Frick Junior HIGH SCHOOL, OAKLAND, CALIF. Oakland Bd. Educ., Admin. Bldg., 1025 2nd Ave., Oakland, Calif. Bids Aug. 12. CD 7/16.

▲ **Maino Constr. Co.**, 2238 S. Broad St., San Luis Obispo, Calif. CA **$1,097,200**. general constr. 2 story 70,000 sq. ft. GYMNASIUM at State Polytechnic College, SAN LUIS OBISPO, CALIF. State Div. Architecture, 1100 S. Grand Ave., Los Angeles, Calif. Bids Aug. 6, awarded Aug. 13. CD 8/13, under LB.

▲† **Diversified Bldrs., Inc.**, Box 877-6855 Rosecrans Blvd., Paramount, Calif., LB **$3,620,000**, (12 bidders)* power plant and cooling tower, and completion of EXPERIMENTAL BREEDER REACTOR II plant bldg. at National Reactor Testing Station, Inv. AT (10-1)-966, ARCO, IDAHO. Atomic Energy Comn., Idaho Operations Office, Idaho Falls, Idaho. Bids Aug. 13. CD 7/17.

▲ **J. I. Barnes Constr. Co.**, Central Bldg., Seattle 4 Wash., CA **$1,145,505**, general contract, Franklin High SCHOOL addn., SEATTLE, WASH. School Dist. No. 1, 815 4 Ave. N., Seattle, Wash. Bids Aug. 5. CD 8/8, under LB.

▲ **J. Lindsay**, 13746 8 Ave. N. W., Seattle, Wash., CA est. **$1,000,000**, 5 story and bsmnt., 78,819 sq. ft. masonry MOTEL, 225 Aurora Ave., SEATTLE, WASH. H. Delaloge, 814 Lakeside Ave., S. Seattle, Wash. CD 3/25.

▲ **Christiansen Bros.**, 209 W. 13th St., Salt Lake City, Utah. LB **$3,530,000**, est. $3,750,000. TERMINAL bldg., ADMINISTRATION bldg. for municipal airport, SALT LAKE CITY, UTAH. Salt Lake City Corp., City-County Bldg., Salt Lake City, Utah. Bids Aug. 14. CD 7/16.

▲† **M. M. Sundt Constr. Co.** and **Stolte Inc.**, 8451 San Leandor Ave., Oakland, Calif. LB **$7,856,557** (15 bidders), SAGE technical facilities, Luke Air Force Base, ENG-04-353-59-4, PHOENIX, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Aug. 19. CD 3/12.

CANADA

BUILDINGS—LB & CA

▲ **Angus Robertson Ltd.**, 5035 Western Ave., Montreal, Que., LB **$5,083,940** (7 bidders) low rental HOUSING PROJECT, Habitations Jeanne Mance, St. Dominique, Ontario and Sanguinet Sts., first phase five units, MONTREAL, QUE. City of Montreal, City Hall, Montreal, Que. Bids Aug. 12. CD 7/23.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Miss., Meridian**—City, City Hall, enlarging filter plant, 3 mg. storage reservoir, booster station and 10 mi. water lines, **$2,000,000**. Hamilton-Shultz-Luke, Roebuck Dr. and Box 1389, consult. engrs. CD 8/4/50.

N. C., Graham—City, City Hall, water treatment, plant addn., lines, raw water supply imprvs. **$500,000**. Platt & Davis, P. O. Box 971, Durham, consult. engrs.

O., North Royalton—Village, 13834 Ridge Rd., bond election Nov. 4, water mains. **$600,000**.

SEWERS, WASTE DISPOSAL

▲ **Ark., Little Rock**—Little Rock Sanitary Sewer Comn., City Hall, Contr. No. 2, outfall trunk sewer, incl. 30,000 ft. 60 in., 14,000 ft. 48 in. and 1,000 ft. 30 and 36 in. pipe. **$2,000,000**. Burns & McDonnell Eng. Co., 95 and Troost Sts. Box 7088, Kansas City, Mo., engrs. CD 3/26/56.

▲ **Calif., Riverside**—Jurupa Community Services, Courthouse, voted **$1,550,000**. bonds Aug. 5, sewage treatment plant and sewers. CD 11/1, under Calif., Jurupa.

▲ **Calif., Santa Ana**—Orange County Sanitation Dist. No. 2, Courthouse, voted **$8,650,000**. bonds Aug 5, sewer facilities, Orange, Olive, Villa Park, Brea, Placentia.

▲ **Calif., Santa Ana**—Orange County Sanitation Dist. No. 3, Courthouse, voted **$13,015,000**. bonds Aug. 5, sewer imprvs., Garden Grove, Buena Park, Stanton, Cypress, Westminster.

▲ **Conn., Westport**—Town, sewer lines, sewage pumping station, **$1,100,000**. Keis & Holroyd, 257 Broadway, Troy, N. Y., consult. engrs.

▲ **Mass., Somerville**—City, City Hall, incinerator, Proj. Mass. 19-P-3034. **$1,065,000**.

Mont., Glendive—City, sewage treatment plant and sewerage sys. **$600,000**.

▲ **Neb., Omaha**—City, City Hall, $8,400,000 bond election Nov. 4, Minne Lasa relief sewer **$2,500,000**; South Omaha treatment plant and South interceptor sewer **$600,000**; interceptor line to connect Ralston and S.W. Omaha to 61st and Harrison Sts. disposal plant **$400,000**; Y St. relief sewer between 26 and 30th Sts. $400,000; Saddle Creek relief sewer **$2,000,000**. CD 10/28/52.

▲ **N. J., Berkeley Heights**—Berkeley Heights Twp., Twp. Hall, plans by Killam Assocs., Millburn, 4 addnl. trunk sewer lines and extension of laterals. **$1,140,000**.

▲ **N. J., Paramus**—Borough of Paramus, Borough Hall, sewerage sys. to connect with Bergen Co. project. $10,000,000. Malcolm Pirnie, 25 W. 43 St., New York, N. Y., consult. engr. CD 9/25/56.

▲ **O., Dayton**—Comrs. Montgomery Co., Court House, 3 incinerators. **$2,275,000**. CD 6/22/55.

▲ **Pa., Honesdale**—Borough of Honesdale, Borough Hall, sewage treatment works. **$1,215,450**. CD 1/12/45.

BRIDGES

▲ **Fla., Panama City**—Comrs. Bay Co., Panama City, bridges. **$1,000,000**. J. B. Converse, 508 Dauphin St., Mobile, Ala., consult. engr.

▲ **Mo., St. Louis**—Bd. P. Service, 304 City Hall, 12 Blvd. and Market St., Zone 3, widening, extending Jefferson Ave. viaduct across Mill Creek R. R. tracks between Chouteau and Scott Aves. **$1,200,000**, F. Ray Martin Engineers, Inc., 407 N. 8 St., Zone 1, consult. engr. CD 5/31/55; viaduct to carry Grand Blvd. across Mill Creek Valley R. R. tracks between Market and Papin Sts. $1,700,000. Sverdrup & Parcel, Inc., 917 Olive St., Zone 1, consult. engr. CD 3/7/46.

EARTHWORK, WATERWAYS

† **Kentucky**—State Dpt. Fish & Wildlife Resources, Frankfort, dam, 20 x 600 ft., 55 ft. high, 12,000 sq. ft. steel piling, relief wells, etc. **$200,000**. Bids in October.

▲ **Mo., Lesterville**—Union Electric Co. of Missouri, 315 N. 12 Blvd., St. Louis, pumped storage type hydro-electric power plant, two dams, power plant, forks Black River and Tom Sauk Creek, near here. **$30,000,000**. Sverdrup & Parcel, Inc., 917 Olive St., St. Louis, Zone 1, consult. engr.

Texas—Hall and Donley Counties Water Control & Imprvt. Dist. No. 1, Courthouse, Clarendon, constr. retention reservoirs for flood protection, Clarendon, **$250,000**. levees and revetments for flood prevention, Clarendon, **$100,000**.

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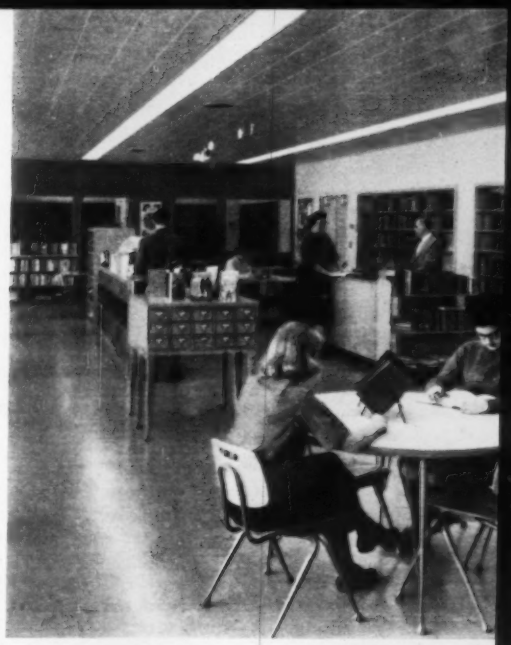
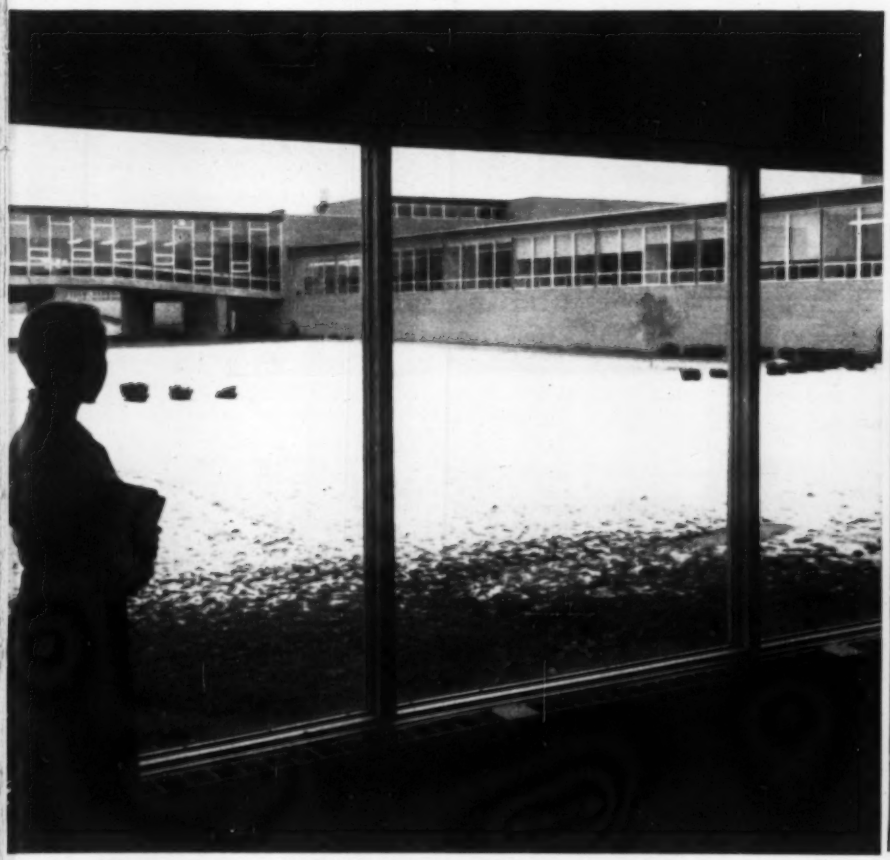


Royal Oak Clarence M. Kimball High School. Architect: O'Dell, Hewlett & Luckenbach; general contractor: O. W. Burke Co.; steel fabricator: DeCroupet Iron Works.



East Lansing Senior High School. Architect: Warren Holmes Co.; general contractor: Ward W. Ross, Inc.; steel fabricator: Copco Steel & Engineering Co.

Dearborn High School. Architect: Eberle M. Smith Associates, Inc.; general contractor: A. W. Kutsche & Co.; steel fabricator: Copco Steel & Engr. Co.

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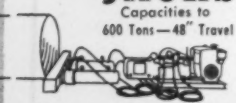

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AIRPORTS

▲† **Calif., Oakland**—TRAFFIC CONTROL CENTER—General Services Admin., 49th 4th St., San Francisco, Zone 3, plans by Thos. B. Bourne Assoc., Inc., DuPont Circle Bldg., Wash., D. C., constr. Oakland Air Rte. Traffic Control Center for Civil Aeronautics Admin. $1,000,000. CD 8/31/56.

▲ **Ill., Aurora**—TRAFFIC CONTROL CENTER—General Services Admin., U. S.—Court House, 219 S. Clark St., Chicago, plans by Thos. B. Bourne Assoc., Inc., Dupont Circle Bldg., Wash., D. C., constr. Chicago Air Route Traffic Control Center for Civil Aeronautics Admin. $4,000,000. CD 7/11.

▲† **O., Oberlin**—TRAFFIC CONTROL CENTER—General Services Admin., U. S. Court House, 219 S. Clark St., Chicago 4, Ill., plans by Thos. B. Bourne Assoc., Inc., Dupont Circle Bldg., Wash., D. C., constr. Cleveland Air Route Traffic Control Center for Civil Aeronautics Admin. $1,000,000. CD 3/7.

PUBLIC BUILDINGS

▲ **Calif., Bakersfield**—AUDITORIUM—City, City Hall, $2,975,000. bond election Nov. 4, auditorium. Wright Metcalf & Parsons, 2323 E St., archts.

▲ **Calif., Oroville**—SCHOOL—Oroville Union High School Dist., c/o Supt., 1535 Bridge St., plans by Lawrence G. Thompson, 125 W. 3 St., Chio, high school, incl. gym., etc. $1,565,500. Kellberg, Paquette & Maurer, 417 Market St., San Francisco, consult. engrs. CD 1/16.

▲ **Colo., Denver**—SCHOOL—School Dist. No. 1, 414 14 St., plans by Smith & Hegner, 1659 Grant St., Thomas Jefferson High School. $4,000,000. CD 12/8/55.

▲ **Conn., Hartford**—SCHOOL—Town, Town Hall, Bd. Educ., 249 High St., plans by Malmfeldt Assocs., 36 Pearl St., high school, Forest St. to replace Hartford High School. $4,500,000. Paul D. Bemis, 36 Pearl St., consult. engr., A. John Macchi, 57 Farmington Ave., site engr. CD 4/11/57.

▲ **Conn., New Haven** — CENTER — City, Redevelopment Agency, regional market and food distribution center. $3,000,000.

▲ **Conn., North Haven**—SCHOOL—Town, plans by Schilling & Goldbecker, 18 Trumbull St., 1 story Junior High School, Bailey Rd. $1,500,000. Hubbard Lawless & Blakelee, 110 Whitney Ave., consult. engrs. Chas. A. Currier & Assocs., 740 N. Main St., West Hartford, landscape engrs. CD 5/7.

▲ **Fla., Tampa**—SCHOOL OF NURSING HOME—Dpt. P. Wks., City Hall, Ray Van Camp, Supt., plans by James H. Kennedy, First National Bank, Gordon Keller School of Nursing Home, Davis Island. $1,054,000.

▲ **Ill., Chicago**—FIREMAN'S ACADEMY, etc.—Dpt. Purchases, City Hall, Zone 2, plans by Loebl Schlossman & Bennett, 333 N. Michigan St., rein.-con., steel, fireman's academy and sta., Clinton and DeKoven Sts. $1,500,000. Bids middle October. Paul Gerhardt, Jr., City Hall, engr. CD 5/14/57.

▲ **Mass., Southbridge**—SCHOOL—Town Supt. Schools, 82 Marcy St., plans by Theodore J. Brodeur, 900 Main St., Worcester, high and trade school, South of Woodward Ave. $1,000,000. CD 2/8.

▲ **Minn., Duluth**—HEALTH, etc.—City, City Hall, plans by A. C. Lucas Jr., 800 Alworth Bldg., health and rehabilitation center, Fifth Ave. E. and Second St., $1,000,000.

▲ **O., Akron**—SCHOOL—Springfield Twp. Bd. Educ., 2966 Sanitarium Rd., bond election Nov. 4, school, $1,280,000. CD 12/26/56.

▲ **O., Canton**—SCHOOL—Perry Local School Dist., 13 St. SE., bond election Nov. 4 schools, $1,500,000.

▲ **O., Mayfield**—SCHOOL—Bd. Educ., S. O. M. Center Rd., bond election Nov. 4, school sites and bldg. $1,000,000. CD 10/23/53.

▲ **O., Warren**—SCHOOLS—Warren Bd. Educ., bond election Nov. 4, schools. $1,200,000.

▲ **Pa., Cressona**—SCHOOL—Blue Mountain Joint School Dist., Cressona, high school. $3,067,500.

▲ **Pa., East Berlin**—SCHOOL—Bermudian Springs Joint School Dist., East Berlin, high school. $1,200,000.

▲ **Pa., Oley**—SCHOOL—Oley Valley Joint School Dist., grade school addn. $1,085,000.

▲ **Pa., Orbisonia**—SCHOOLS—Southern Huntington Co. Joint School Dist., Orbisonia, high school, $2,174,000; 2 grade schools, one, $550,670 and other, $404,941.

▲ **Tenn., Memphis**—HOSPITAL—State of Tenn., Nashville, plans by A. L. Aydelott, 2080 Peabody Ave., 7 story intensive treatment hospital, personnel training and research facilities for Mental Hospital at University of Tennessee. $6,000,000.

▲ **Tex., Austin**—BUSINESS ADMINISTRATION, etc.—University of Texas, Main Admin. Bldg., plans by Page, Southerland & Page, 602 W. Ave., Austin, 7 story business administration. $2,500,000; 5 story economics bldg. $1,500,000. CD 8/16/44.

▲ **Wash., Bellevue**—SCHOOL—School Dist. 405, plans by Naramore, Bain, Brady & Johanson, 904 7 Ave., Seattle, 32 classroom Junior High School, $1,171,199, Bids Aug. 19. grading site. CD 4/14.

Wis., Madison—SCHOOL—Bd. Educ. plans by J. Klund & Assocs., Box 2175, 1 story, 188 x 256 ft. L-shaped elementary school, Tokay St., $350,000.

COMMERCIAL BUILDINGS

▲ **Calif., San Mateo**—HOSPITAL—Mills Memorial Hospital, chn. Bd. Directors, 95 S. El Camino Real, plans by John Lord King, 244 Kearny St., San Francisco, 2 story surgery bldg., 43 bed hospital addn., and expansion of maternity and pediatric dpts., $1,650,000.

▲ **Conn., Hartford**—OFFICE—Phoenix Mutual Life Insurance Co., 79 Elm St., plans by Welton, Becket & Assocs., 5657 Wiltshire Blvd., Los Angeles, Calif., office bldg. $1,000,000. CD 1/23.

Conn., West Hartford—CHURCH—Archdiocese of Hartford, Chancery Office, 140 Farmington Ave., Hartford, church, Parish of St. Timothy, N. Main St. $350,000.

D. C., Wash.,—GYMNASIUM—St. John's High School, 2607 Military Rd. N. W., plans by Walton & Maddon, 3510 Rhode Island Ave., Mt. Rainier, Md., gymnasium $350,000.

Fla., Key West—APARTMENT—Samuel Golen, c/o Gerber, Pancani & Crump, archts., DuPont Plaza Center, Miami, 80 unit co-op apartment. $350,000.

Fla., St. Petersburg—APARTMENT—Garden Apts., c/o Stanton Sanson, 1417 N. Venetian Way, 120 unit apartment, Winston Park. $450,000. Gerber, Pancani & Crump, Suite 1007, DuPont Plaza Center, Miami, consult. engrs.

▲ **Ill., Chicago**—MEDICAL SCHOOL—Chicago Medical School, 710 S. Wolcott St., plans by A. Epstein & Sons Co., 2011 Pershing Rd., medical school, lab. and research, Damen near Harrison St. at West Side Medical Center. $3,600,000.

▲ **Ill., Chicago**—HOSPITAL—University of Chicago, 5801 Ellis, plans by Schmidt Garden & Erikson, 104 S. Michigan, 3 story hospital adj. to clinics 58th, Drexel and Inglesside. $1,500,000.

▲ **Ill., Chicago**—SCHOOL, etc.—Trinity Seminary & Bible College, 1726 Berteau, plans by Johnson & Johnson, 111 W. Washington, 3 story, rein.-con. 140-student school addn. $650,000; 3 story, 51 x 146 rein.-con. woman's dormitory, $450,000.

▲ **Ill., Chicago**—SCHOOL—Francis Parker School, 330 Webster, plans by Holabird & Root & Burgee, 180 N. Wabash, Zone 1, 3 story, circular school. $2,000,000.

Ill., Jacksonville—SCHOOL—Passavant Memorial Hospital, nursing school bldg., adjacent to hospital, $715,000. CD 6/13/50.

Ill., Norwood Park—HOME—Norwegian Old People's Home, 6016 N. Nina Ave., plans by Skadberg Olson Co., 2532 N. Milwaukee Ave., Chicago, 3 story, old people's home addn. $400,000.

▲ **Ill., St. Charles**—HOMES—Howard Rockafellow, 436 W. 14th St., 130 homes, E of S. 7th St., end of 9th, 10th and 11th Sts. $1,560,000.

▲ **La., Lake Charles**—SHOPPING CENTER—Chas. K. Busker & William E. Bunin, Welsh Grill & Motor Lodge, Welsh, plans by Murphy & Perkins, 911 General Mouton, Lafayette, shopping center, U. S. Hy. 90 at Kayouche Coulee east of here. $2,000,000.

▲ **La., New Orleans**—TRADE MART—International Trade Mart, Wm. G. Zetzman pres., Camp and Common Sts., plans by Edward Stone, 28 E. 65th St., New York, N. Y. International Trade Mart Bldg., Canal St. bounded by Canal, Front Poydras and Delta Sts. $7,000,000-$10,000,000.

▲ **Mo., Ferguson (St. Louis 21 P.O.)**—HOSPITAL—Franciscan Sisters of Our Lady of Perpetual Help, 3419 Gasconade St., St. Louis, Zone 18, St. Francis Hospital, Florissant Rd. between Fairview Ave. and Brotherton Lane. $5,000,000.

▲ **Mont., Billings**—SHOPPING CENTER—Albertson's Inc., 1610 State St., Boise, Idaho, 200,000 sq. ft. shopping center, parking area. $3,000,000.

▲ **N. J., Bergenfield**—APARTMENT—Harold E. Wells, 130 Orient Way, Rutherford, 5 story, 35 unit, brick apartment, East Church St. $1,000,000.

▲ **N. J., North Bergen**—APARTMENT—Park River Towers, Inc., c/o Jerome Robbins, 17 51 St., Weehawken, 8 story, 92 unit air-conditioned apartment, 8800 Boulevard East. $1,000,000.

N. Y., Brooklyn—SYNOGOGUE—Congregation Talmud Torah Ben-Elihi, 1337 E. 96 St., Zone 12, plans by Gustave Goldman, 130 Clinton St., Zone 2, synogogue alterations at site. $400,000.

▲ **O., Cleveland**—MOTEL—Euclid-Chester-E 107 Co., 11214 Euclid Ave., Zone 6, plans by Raymond A. Davies, 2500 Euclid Ave., Zone 17, 5 story, 150 unit motel, 1962 E. 107 St., 150 car parking deck. $1,250,000.

O., Maple Heights—APARTMENT—Henry Constr. Co., 18314 Kinsman Rd., Cleveland, Zone 22, plans by Howard Green Design Service, 2138 Lee Rd., Cleveland, Zone 18, 60 unit apartment project on south side Maple Heights Blvd., between Lee Rd. and Broadway, $650,000.

▲ **O., Mt. Healthy**—HOUSES—Northbrook Homes, 9579 Pippin Rd., prefab. bsmtless houses, exten. Northbrook Sub. $1,740,000. Ed. Niemeier, 4484 Harrison St., Cincinnati, consult. engr.

▲ **Tex., Dallas**—DWELLINGS—Malcom McCulloch, Developer-Builder, 3470 Overbrook Lane, Houston, plans by E. Kelly Gaffney, 4132 Coleridge St., Houston, 20 dwellings, $345,750; 36 dwellings, $391,600; 30 dwellings, $366,225; 28 dwellings, $356,100; 24 dwellings, $349,850; 33 dwellings, $374,000, all northeast of White Rock Lake.

(Proposal Advertisement see pp. 86-90)

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Tex., Mesquite—DWELLINGS—Melton Constr. Co., 1830 Hickory Tree Rd., 38 low-priced dwellings in Cedgement Park. **$365,000.**

Tex., Navasota—HOME FOR AGED—Presbyterian Church Home for the Aged, 304 S. Washington, Chas. Sheldon, bldg. chn., **Bryan, plans by Golemon & Rolfe, $100** Travis St., Houston, home for (100) aged. **$350,000.**

Tex., Odessa—COUNTRY CLUB—Odessa Country Club East of Odessa, plans by Taylor & Delvin, 300 N. Jackson, country club facilities. **$350,000** Tippett & L. Gee, C&T Bldg., Abilene, consult. engrs.

Tex., Pampa—CONVALESCENT HOME—Top O'Texas Foundation, Pampa, The Barrett Convalescent Home, on Castleberry Hill, **$360,000.**

▲ **Tex., San Antonio**—SHOPPING CENTER, etc.—Berler Properties, Alvin B. Berler & Co., 100 Mackey St., plans by Otto Ransleben, 206 San Pedro St., regional shopping center, **$3,500,000;** hard paved parking for 3,000 cars, **$175,000;** area lighting, **$75,000,** on 35 acre site, Fredericksburg Rd., near Vance-Jackson Rd. Jean Edens, 1102 Basse Rd., consult. engr.

▲ **Tex., San Antonio**—MOTEL, etc.—Earl C. Parker, El Montan Hotel, 6806 San Pedro Ave., plans by Hesson & May, 148 Olmos Dr. W., 100 unit addn. to existing El Montan Motel, **$600,000;** swimming pool, **$75,000.** R. Marvin Shipman, 202 Olmos Dr. W. and W. E. Wallis, 4600 Broadway, San Antonio, Tex., consult. engrs. CD 8/12.

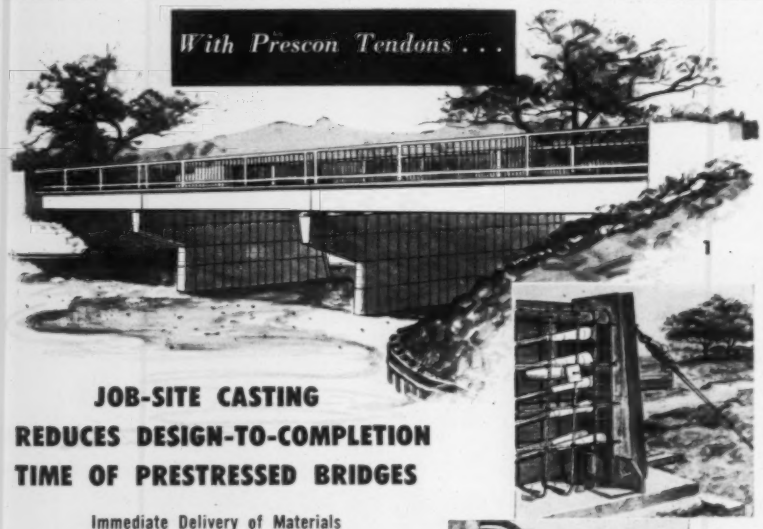
Tex., San Antonio—CONVENT—Sisters of Divine Providence, Lady of the Lake-College, SW 24th St. and Durango, San Antonio, plans by Bartlett Cocke, Chas. Bloomfield, 3501 Broadway, convent for Retired Sisters. **$350,000.** Jean Edens, 1102 Basse Rd., and Barry F. Johnson, 1102 Basse Rd., consult. engrs.

Tex., Tyler—OFFICE—East Texas Savings & Loan, M. L. Witherup, 222 N. Broadway, plans by Carl Gregory, Box 764, 3 story office, **$600,000,** CD 8/8.

▲ **Ont., Cornwall**—SHOPPING CENTER—Owner, c/o Lucien Lamoureux, Barrister, 4 2nd St. E. 40 stores shopping center with parking for 1800 cars, **$5,000,000.**

▲ **Que., Riviere du Loup**—COLLEGE—Corporation du Patronage de Riviere du Loup, c/o M. Gendron, mayor, plans by Maurice Mainguy, 175 S. Jean St., Quebec City, 2 story, bsmnt. 205 x 65 ft. and 81 x 153 ft. L-shaped, rein.-con., stee' frame, brick walls, classical college. **$1,250,000.** Dufresne & Mainguy, 915 St. Cyrille St., Quebec City, Que., consult. engrs. CD 7/22, under Centre Patronage du Diocese, c/o M. Gendron, as owner.

▲ **Sask., Yorkton**—HOSPITAL—Union Hospital Bd., Yorkton, hospital. **$1,297,704.**



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1. Santa Cruz River bridge, Tucson, Ariz.
2. Detail of grouted tendons in form for South Carolina bridge.
3. Stressing jack in place, and hydraulic pressure being applied. Stressing equipment and training supervision are furnished.

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INDUSTRIAL BUILDINGS

Ala., Monroeville — WAREHOUSE — Monroe Industries Corp., Monroeville, warehouse addn. **$375,000.**

Conn., Middletown—TRANSFORMER—Hartford Electric Light Co., 266 Pearl St., Hartford, concrete, steel transformer bldg., Columbus Ave. **$109,000.**

Conn., Waterbury—PLANT—Curtis Products Co., 7 Cherry Ave., 1 story, 10,000 sq. ft., brick, steel, plant for mfr. screw machine products, Cly-Del Industrial Park, Sharon Rd. **$100,000.**

Fla., Auburndale—WAREHOUSE—Adams Packing Assoc., Anburndale, warehouse. **$100,000.**

Mo., Jefferson City—PLANT—Missouri Power & Light Co., 106 W. High St., auxiliary propane air gas plant. **$500,000.**

Mo., St. Louis—GARAGE—Automatic Parking of Mo., Inc., c/o J. Arnold Smith, archt., 2601 Main St., Houston, Tex., 15 story, 55 x 83 ft. masonry, steel, concrete parking garage, 616 N. 9 St. Over **$500,000.**

Mo., St. Louis—GARAGE—York Garage Co., c/o Harold Koplar, Chase Hotel, Kingshighway at Lindell Blvd., Zone 8, 4-level parking garage above ground and one level below, 221 York Ave. **$750,000.**

▲ **N. Y., Cheektowaga**—DISTRIBUTION CENTER—General Electric Co., 1 River Rd., Schenectady, 100,000 sq. ft. distribution center for sales and distribution division, inside docks for 3 freight cars and 6 trucks. **$1,000,000.**

O., Mentor—PLANT—W. S. Tyler Co., 3615 Superior Ave., 60,000 sq. ft. plant in Industrial Park, **$600,000-$800,000.** Geo. S. Rider Co., Terminal Tower, Cleveland, Zone 13, consult. engr.

▲ **O., North Canton**—FACTORY—The Hoover Co., North Canton, plans by Dalton & Dalton, The Arcade, Zone 14, 40,000 sq. ft. factory bldg. and facilities Witwer St. **$2,000,000.** Constr. in September.

S. C., Allendale—PLANT—Allendale Garment Co., Allendale, plant. **$100,000.**

S. C., Bishopville—WAREHOUSE—Palmetto Oil Co., Bishopville, warehouse. **$100,000.**

Tex., Dallas—PARK CAR and SHOP—St. Paul Bldg. Co., 2505 Turtle Creek Blvd., plans by Walter W. Ahlschlager, 2505 Turtle Creek Blvd., park car and shop bldg. **$200,000.** Mullen & Powell, Insuromedic Bldg., and Herman Blum, 4930 Maple St., consult. engrs.

Tex., Garland—PLANT—Temco Aircraft Corp. plans by Harrell & Hamilton, 819 Rep. National Bank Bldg., Dallas, plant addn. **$750,000.** Raymond L. Goodson, 5008 Greenville Ave., and Gregerson & Gaynor, 3610 Blackburn, Dallas, consult. engrs. CD 5/27.

Tex., Houston—WASHATERIAS—O'Bannions Laundry-Cleaners & Washateria, 5215 Kirby St., washateria, Proj. No. 1. **$100,000;** washateria, Proj. No. 2 **$100,000;** washateria, Proj. No. 3, **$100,000;** washateria, Proj. No. 4, **$100,000.**

Tex., Houston—PLANT—Cooper-Bessemer Corp., 2705 Danville St., packaged compressor units plant, Unit 1, on 30 acre site. **$400,000.**

Tex., Houston — WASHATERIAS — O'Banion's Laundry-Cleaners & Washateria, 5215 Kirby St., Houston, plans by Milton McGinty, 2425 Ralph St., Houston. Washateria, No. 1, **$100,000;** Washateria, No. 2, **$100,000,** Washateria, No. 3, **$100,000,** Washateria, No. 4, **$100,000.** CD 8/11.

▲ **Wyoming**—NATURAL GAS PLANT—Pan American Petroleum Corp., Riverton, 47,000,000 cu. ft. daily natural gas processing plant at Beaver Creek, **$2,000,000.**

Alta., Calgary—PLASTER MILL—Western Gypsum Products, Ltd., Winnipeg, Man., plaster mill. **$700,000.**

Alta., Edmonton—PLANT—The Edmonton Produce Co. Ltd., 10504 102 St., plant addn. **$100,000.**

Ont., Stratford—PLANT—Cleaver Brooks Co. Ltd., 326 E. Keefe Ave., Milwaukee, Wis., 25,000 sq. ft. boiler mfg. plant. **$900,000.**

UNCLASSIFIED

Ala., Birmingham—LIGHTING SYS.—City, City Hall, lighting sys. for Oscar Wells Memorial bldg. **$200,000.**

† **Arizona and Nevada**—PARK ROADS—National Park Service, Dpt. Interior, 19 and C Sts. N.W., Wash. 25, D. C., surface Temple Bar Access Road, Lake Mead National Recreation Area. **$112,000.** CD 3/5/56.

† **California**—PARKING AREA—National Park Service, Dpt. Interior, 19 and C Sts. N.W., Wash. 25, D. C., Glacier Point parking area; reconstr. foot paths, Glacier Point; parking area, Washburn Point; roads, parking, White Wolf Lodge and White Wolf Campground, Yosemite National Park, **$136,100;** extension of Dorst Campground road; reconstr. and relocate roads in Ash Mountain area, Sequoia-Kings Canyon National Park, **$90,600.** CD 6/12/56.

▲† **Wyoming**—PARK ROAD AND BRIDGES—National Park Service, Dpt. Interior, C and 18 Sts. N.W., Wash. 25, D. C., grading, base surf. 4.5 mi. Jackson Lake Rd., Grand Teton National Park, Rte. 2 (por.), R-23-3, **$500,000** (appropriated); 3 Gibbon River Bridges, Yellowstone National Park, Grand Loop, 1A, B, C, R-109-6, **$575,000** (appropriated). CD 9/30.

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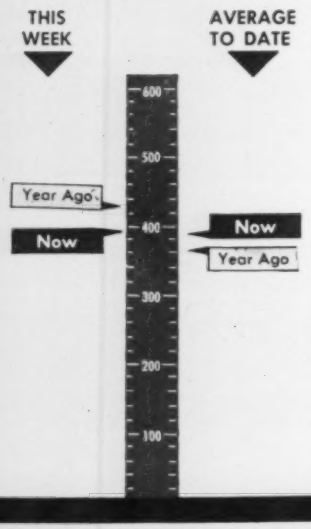
Construction Scoreboard

ACTIVITY THIS WEEK

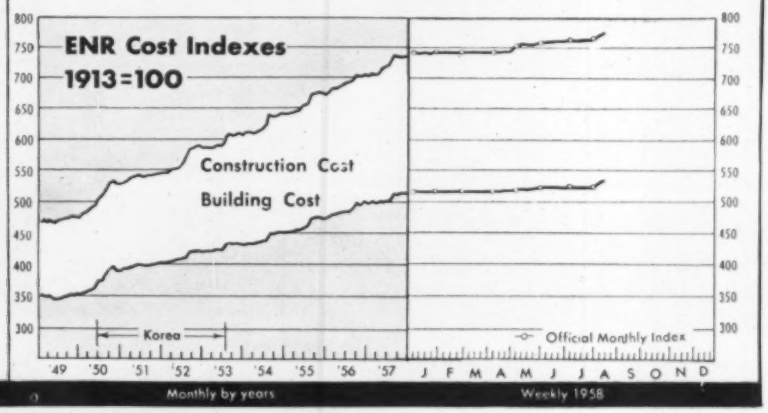
Contract Awards
Millions of Dollars



COST INDEXES AS OF NOW

ENR INDEXES (1913=100), 20-cities' average	Week of Aug. 21 1958	% Change from July 24 1958	% Change from Aug. 22 1957
Construction Cost	773.06	+1.18	+4.72
Building Cost	534.33	+1.77	+3.44

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.



AMOUNT OF CONTRACTS LET

By Ownership	This Week millions	Cum. 35 wks 1958 millions	Chge '57-'58 %
All Heavy Constr.	$397.8	$13,731.6	+7
Private	195.5	5,715.4	−3
Public	202.3	8,016.2	+16
State & Municipal	175.7	5,763.1	+13
Federal	26.6	2,253.1	+24
By Type of Work			
Public			
Waterworks	0.8	219.6	−11
Sewerage	12.7	419.9	+11
Bridges*	12.1	481.0	−6
Highways	95.1	2,313.2	+7
Earthwork, Waterways	7.7	777.0	+1
Buildings, Excl. Housing	44.1	1,835.1	+17
Housing	7.8	907.9	+90
Unclassified	22.0	1,071.6	+27
Private			
Mass Housing	110.6	2,740.4	+35
Commercial	73.3	1,360.2	+12
Industrial	10.2	1,288.8	−41
Unclassified	1.4	316.9	−6

* Includes private bridges.

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

NEW CAPITAL FOR CONSTRUCTION

	Week of Aug. 21 millions	Cum. 34 wks 1958 millions	Chge '57-'58 %
Corporate Securities	$171.3	$3,695.2	−4
State and Municipal:			
All Except Housing	63.3	4,304.5	+20
Housing	...	33.8	−78
Federal Loans	1.1	137.7	−13
Federal Aid	...	....	−100
Total Nonfederal	$235.7	$8,171.2	−17
Federal Appropriations:			
Projects in U. S.	...	$849.5	−23
Outside U. S.	...	6.3	−72
Total New Capital	$235.7	$9,027.0	−18

BACKLOG OF PROPOSED HEAVY CONSTRUCTION

	July 1958 (millions)	Percent Change from last Month	Year
Total U. S. (ENR reported)	$111,553	−0.4	+ 4.4
By Ownership—			
Private	47,956	+0.3	+ 5.7
State & Municipal	50,434	−0.6	+ 4.3
Federal	13,163	−1.7	+ 0.3
By Type of Work—			
Waterworks	2,658	−0.2	+16.1
Sewerage	3,412	−0.2	+ 4.0
Bridges	3,352	−1.4	+ 8.4
Highways	13,166	−0.9	+ 2.3
Earthwork, Waterways	11,670	−0.4	+ 4.8
Public Buildings	19,849	−0.7	+ 0.8
Industrial Buildings	16,532	−0.1	+ 1.2
Commercial Buildings	21,546	+0.7	+10.2
Unclassified, Private	9,878*	−0.1	+ 4.1
Unclassified, Public	9,489	−2.1	+ 4.1

* Includes Private Bridges, $84 million.

FLOW OF NEW PROJECTS INTO THE BACKLOG

	1958 July (millions)	1958 7-months (millions)	Percent Change from '57 July	Year Cum.
Total U. S. (ENR reported)	$945	$9,095	+ 9.5	−18.0
By Ownership—				
Private	437	4,097	− 3.2	−24.0
State & Municipal	357	4,243	− 4.2	−17.6
Federal	151	755	+292.0	+39.1
By Type of Work—				
Waterworks	20	376	+66.8	+51.7
Sewerage	32	369	+10.5	+ 1.3
Bridges	7	257	−52.0	− 5.5
Highways	65	1,085	−10.1	−32.7
Earthwork, Waterways	20	149	+49.7	+27.2
Public Buildings	347	2,114	+46.1	−17.6
Industrial Buildings	65	745	−55.5	−60.5
Commercial: Mass Housing	195	1,324	+29.2	− 6.9
Other Building	165	1,811	+29.8	+12.2
Unclassified, Private	13	217**	−55.0	−54.2
Unclassified, Public	17	648	−48.3	+26.2

** Includes Private Bridges, $600,000.

FLOW OF PROJECTS OUT OF BACKLOG INTO CONTRACTS

Total U. S. (ENR reported)	$1,241	$6,431	+47.5	+12.1
By Ownership—				
Private	226	1,796	− 6.8	−14.7
State and Municipal	643	3,341	+47.4	+23.0
Federal	372	1,295	+128.9	+41.1

Compare the first half of '58 with the first half of '57:

- **Output of construction materials was down 7%.**
- **Manhours worked in contract construction dropped 11%.**
- **BUT government figures show construction put in place is steady.**

These conflicting reports on the recession's impact indicate the . . .

Government Needs Better Building Data

The government's principal measure of construction activity, the statistical series on new construction put in place, is heading toward new criticism because of its poor showing this year. The put-in-place figures have reported what few construction men are prepared to believe—namely, that construction passed through the 1957-58 recession with scarcely a wobble.

Dollar volume of work in the first six months of 1958, according to the Commerce-Labor Department statistics, ran 0.1% ahead of the first half of 1957. Even after adjustment for price increases, the government figures show an insignificant decline of 1.6%.

The put-in-place figures are especially suspect this year because other government data indicate fair-sized drops in construction activity. Examples: The Commerce Department's new index of construction materials output ran 7% behind its year-ago pace. And a Labor Department index of manhours worked in contract construction trailed the first half of 1957 by 11%.

There are a few possible explanations: Construction could have used up more materials than were currently produced while manufacturers and dealers were trimming inventories. And a rise in manhour productivity could explain part of the big gap between construction volume and the labor that went into it. But the gaps between '57 and '58 figures look too large for these explanations to provide complete answers.

• **Far behind**—More likely, the government's put-in-place series has again shown itself too sluggish and inexact to be a reliable indicator of construction activity.

Lack of money is the chief problem. Appropriations for federal statistical programs in the construction field are pretty small. These programs until this year ran on annual budgets totaling only $700,000. The economic activity they measure, including new construction, maintenance and repair, represents expenditures of about $70 billion.

But look at the government's agricultural statistical programs. They get annual appropriations of $10 million to measure agricultural output of about $30 billion, less than half the expenditures on construction in the U. S.

This year Congress voted an additional $125,000—out of a requested $500,000—to enable the Commerce Department to improve its data collection methods. But this first increase, after a half-dozen years of pleas for additional funds, still leaves construction statistics programs in the shoestring category.

• **The weakness**—The basic defect of the put-in-place figures is this: They are largely a product of statistical manipulation rather than direct reporting of actual construction activity. Most of the figures on private construction and state-local work are estimated from contract awards and building permits according to phased patterns developed several years ago.

In only a few instances—federal work, telephone industry and Class I railroads—are there direct reports of work progress. And some other final reports become available only after a lag of up to a year and a half. That means sizable revisions frequently must be made in the reported statistics.

In using contract awards data to estimate actual construction activity, government statisticians assume that jobs advance according to some standard pattern. A one-family house might be spread over four months and a school over 14 months in calculating the supposed volume of work put in place. But this isn't necessarily so.

All of this means the government figures cannot accurately reflect the impact of a month of consistently bad construction weather, like last February, or of major strikes. Also, the average progress pattern may change. Test studies by the Commerce Department indicate that the average job is completed faster now, making the standard patterns outdated.

One reason for the failure of the put-in-place figures to reveal any slowdown in construction early this year lies in the nature of the data used in making the estimates. The government uses contact awards data reported by F. W. Dodge, which assumes certain standard progress patterns of subcontracting on excavation, structural work and electrical work.

• **Slow signals**—This spreading of prime contracts tends to iron out wide month-to-month changes in contract awards, but it may postpone signals of important shifts in construction business. For instance, it wasn't until late summer of 1957 that the Dodge awards began consistently to trail behind the same months of 1956.

ENR's more sensitive awards data ran far behind year-before levels consistently from February on. This gave a clear and early signal of a slow-down in construction activity. It was confirmed by the government indexes of construction materials output and manhours worked in contract construction. These also trailed year-before levels through most of 1957.

Both the Dodge and ENR reports of contract awards have been moving up sharply in recent months, and there has been improvement also in the government indexes of construction materials output and manhours worked. If the put-in-place figures run true to form, they will depict a slump-ridden industry this fall—while construction men are working overtime.

New Construction Proposals Drop 18%

New proposed work entering the ENR Heavy Construction Backlog shows a sharp drop of 18% in the first seven months of this year. This drop, coupled with a 12% boost in construction jobs flowing out of the backlog into contract, is shaving the inventory of construction work on hand. July was the fourth consecutive month that the inventory was pared.

This implies that while the next 18 months will see a construction pick-up (ENR Aug. 7, p. 21), the rise will not keep up with construction needs. This is particularly true in the public works field. A genuine indication of getting back on the track toward full growth will be seen only when proposed work turns up.

The major weakness is in industrial and highway work. The latter will not become apparent, however, until at least a year from now. Highways were caught in the bottleneck of tight money in the latter part of 1957 and early 1958. Major roadbuilding states were kept from awarding contracts. These will now continue to flow.

Except for federal work, the inflow of new projects is lagging behind 1957. New proposed federal projects totaling $755 million were added to the ENR backlog during the first seven months, bringing this grouping 39% ahead of the same months last year.

The federal activity is in sharp contrast to state and municipal proposed work, which is off 18% from 1957 to $4,243 million. Private work also is down by 24% to $4,097 million.

• **Encouraging increases**—In July alone, federal agencies added $151 million to the stockpile of new construction. This was more than three times the low registered in June this year and second in size to the big addition of $308 million in March of this year. A large part of the July increase reflects the buildup of Capehart housing. July public building added to the planning inventory rose 24% to $347 million to top last year by 46%.

Among other bright spots for construction is the 12% increase in proposed work for commercial building, the 26% boost in unclassified public jobs, the 52% rise in proposed waterworks, and the 27% hike in earthwork, dams and waterways. All of these increases were registered in the January through July period and are boosts over the same period of 1957.

• **Moving out fast**—Although planning for new construction is lagging, there is a notable step-up in projects moving from planning into the hands of contractors. All types of public work are moving out of the ENR backlog into contract at better rates than last year. The over-all exodus is 12% above 1957, federal projects topping the list with a gain of 41%.

Despite the 15% lag among private projects generally, mass housing is moving from the planning stage into contract at the fastest pace of all—up 68% from the first seven months of last year to $534 million. An almost equal volume of industrial building moved to contractors from the backlog. However, the $533 million in volume was 51% less than through July 1957.

Public buildings projects worth $1,761 million moved into contractor's hands in the first seven months of this year. This is the biggest single type of construction to move into active status this year, and serves to top 1957 by 52%.

Highway work of $1,043 million is second, but it is going out only slightly faster than one year ago.

ENR's inventory of construction projects in various stages of planning at the close of July stands at $111.6 billion, a 4% increase over one year ago. Waterworks have expanded the most in the year, up 16% to $2.7 billion. Private building jobs are next with $21.5 billion, a hike of 10%.

How Architects' Business Dropped

Volume of design work going to architects in 1957 dropped 17% to $8,623 million, according to ENR's newest analysis of heavy construction contract awards. This volume was spread among 3,448 architects, a dip of 3% from the number doing business in 1956. Each of the firms surveyed had a minimum of $100,000 in new business. The number of projects included in the dollar volume figure was 7,926, a drop of 11% from 1956.

Here's how the architects' business analysis compares with that for consulting engineers (ENR Aug. 14, p. 14) and architect-engineering firms (ENR Aug. 21, p. 133):

• Volume of new business among consulting engineers slid 28% in 1957 to $6,544 million, with the number of jobs declining 13%. The number of firms dipped 7% to 1,555.

• Architect-engineering firms had a volume drop of 39% to $3,270 million, spread among 1,893 projects. The number of firms increased 1% to 383.

• **Big firms hit hardest**—The large architectural firms, those doing $1 million or more, were the hardest hit by the construction decline in 1957. Although the number of the top-size firms dipped only 5%, they handled 14% fewer jobs for a total of 5,902. Moreover, the value of their new business skidded 18% to $7,854 million.

In contrast, the $100,000 to $500,000 firms experienced much smaller cutbacks in number of projects and the value of new business obtained.

Moreover, the medium size architectural firms, those doing from $500,000 to $1 million, scored small increases in number of firms, number of projects and total value of the projects. The number of firms increased by 2% to 730. They handled 6% more projects (1,036), with a total value of $439 million.

• **Changed emphasis**—Over-all, the big firms lost a little ground to the medium and small concerns. The million-dollar-and-over firms obtained 91.1% of the market, compared with the record high of 92.6% of the market in 1956. The medium size firms boosted their share of the market to 5.7% from a low of 4.6% in 1956. Small firms edged into 3.2% of the market last year, compared with 2.8% in 1956.

Architects did more design work on airports, sewerage and waterworks in 1957 than they did in 1956. Gains in airport design business were shared by all size categories.

• **The mainstay**—Housing, commercial and public building design jobs remain best fields for the architectural profession, although only the medium size firms expanded their work loads in these fields during 1957. Million dollar firms did 18% less business last year than in 1956. The $100,000 to $500,000 firms took in 7% less work last year than in 1956.

A step-up in federal architectural jobs is reflected in the increased business by firms of all sizes.

Engineer Loses His Fight To Collect Contingent Fee

A U. S. District Court judge at Wilmington, Del., has underlined the danger of accepting employment on a contingent fee basis when a federal contract is involved. The judge ruled that Edmund V. Browne, a Philadelphia licensed engineer, could not collect fees for work done in anticipation of a government contract. R and R Engineering Co., Philadelphia, was the defendant.

The judge based his decision on Presidential Order 9001, which prohibits employing any person on a contingent fee to solicit or secure a government contract.

Mr. Browne claimed he was to be paid $1,000 for preparing drawings, and be made a partner or paid a percentage on any contract obtained. After the contract was secured, he submitted a bill of $14,500 to R and R Engineering and received payment of $5,600, of which $1,000 was for the drawings. Mr. Browne then filed suit.

Stone & Webster Founds Subsidiary in Netherlands

Stone & Webster Engineering Corp. has formed a new subsidiary in the Netherlands and changed the names of existing subsidiaries in Britain, France and Australia. The Dutch subsidiary, Stone & Webster Engineering N. V., is located in The Hague.

In Britain, E. B. Badger & Sons, Ltd., which was merged with Stone & Webster in 1951, becomes Stone & Webster Engineering Ltd. In France, Etablissements Badger, S. A., will be known as Stone & Webster Engineering S. A., and in Australia, E. B. Badger & Sons Pty., Ltd., will be Stone & Webster Pty., Ltd.

American-Marietta Accused Of Monopolistic Practices

Charging price discrimination and monopoly in manufacture of corrugated and reinforced concrete pipe, eight Texas firms are suing American-Marietta Co. of New Mexico in a federal court for $975,000 in damages. Brown Supply Co., Lubbock, asks $760,000. The rest is sought by seven other Texas corporations with similar names.

The plaintiffs claim that the New Mexico firm repeatedly has cut prices to undersell them. Their petition makes these further claims:

For about 20 years American-Marietta and its predecessor, Tellyer Concrete Pipe Co., held a virtual monopoly of the state's reinforced concrete pipe business. The company maintained artificially high prices, greatly increasing costs of New Mexico's highways. About 1949, the Brown companies began selling corrugated metal pipe in the state. In 1955, sales to state and federal highway projects mounted, so a plant was established at Las Cruces, N. M. Beginning about January 1, 1956, and continuing intermittently, American-Marietta has sold concrete pipe, corrugated metal culvert pipe and metal highway guards in areas where it competes with Brown at lower prices than it sells them elsewhere. The reductions were actual, or in the form of rebates, discounts or other devices, the petition declares.

Business Briefs . . .

• **Asphalt headquarters**—The Pacific Coast Division of the Asphalt Institute has dedicated its new headquarters building in Berkeley, Calif. The building is the only property owned by the institute other than its national headquarters.

• **Fabricator expands**—Macomber, Inc., of Canton, Ohio, has bought the plant and assets of Rock Island Bridge & Iron Works of Rock Island, Ill. Macomber, one of the largest fabricators of open-web structural steel products, will expand Rock Island's facilities.

• **Materials firm to build**—United States Gypsum Co. plans construction of a gypsum manufacturing plant at Sperry, Iowa. Completion is scheduled for early 1960. Products to be manufactured include sheetrock wallboard, rocklath plaster base, building plasters and gypsum sheathing.

• **Clay pipe branch**—Southern Clay Pipe Institute has been established in Atlanta. The group is composed of seven firms located in the southeastern part of the U. S.

• **New plant near Montreal**—The Steel Co. of Canada Ltd. will build a $10 million pipe plant at Contrecoeur, 25 miles east of Montreal. Production is scheduled for mid-1959.

• **McKee income up**—Arthur G. McKee & Co., engineering and construction firm of Cleveland, reports first half income of $2.2 million compared with $1.7 million in the same period last year. As of June 30, working capital totaled $10.5 million compared to $9 million in 1957.

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AFL-CIO Is Stern But Cautious

Action on teamster alliances and corruption charges against two building trades serve dual purpose

The AFL-CIO carried its vigorous campaign against trade union corruption into the building trades bloc last week. Its action was stern enough to impress the public, yet lenient enough to preserve the federation.

In a series of command decisions, which even Solomon might have trouble improving, the AFL-CIO took these steps:

- Banned all alliances—including the Four-Way Pact—between its affiliates and the expelled International Brotherhood of Teamsters.
- Directed all its state and local central bodies to dump all teamster members holding office under membership cards in other unions.
- Ordered the International Union of Operating Engineers to clean its house more thoroughly.
- Decided to call carpenters' President Maurice Hutcheson on the mat to explain his balkiness before the McClellan Committee and ordered the union to give a full report on charges of corruption within the union.

The steps were taken by the federations' Executive Council, which held its quarterly meeting at Unity House, a Forest Park, Pa., vacation resort of David Dubinsky's Garment Workers' Union.

There is little indication that these decisions, despite their tenor, will have any direct or immediate effect on the construction industry. Due largely to the strength and prestige of the building trades group, long considered the backbone of the old AFL, each step avoids any hasty or precipitate action that could wreck the merger. All are a form of marking time. And all represent an increasing reliance on the power of persuasion to avoid what otherwise might be fateful decisions.

• Alliances—The best illustration is the ban on teamster alliances. This is essentially another AFL-CIO vehicle for exhorting rank-and-file teamster members to dump their top leadership—specifically President James Hoffa.

Federation President George Meany categorically states that the ban embraces the Four-Way Pact. That is a working alliance between the carpenters, operating engineers, laborers and teamsters. It is an organizing pact intended to promote job opportunities for the four trades in heavy and highway construction and to increase their memberships. It seeks to curb the inroads made by non-union workers and by District Fifty's United Construction Workers, an affiliate of the United Mine Workers. The National Heavy and Highway Construction Committee, assisted by regional committees, administers the pact.

Neither the ban nor Mr. Meany's interpretation has seriously alarmed the building trades, which are among the most realistic members of the AFL-CIO. The general reaction at Unity House was that they must, can and will continue to work with the teamsters at construction sites. They do not regard the Four-Way Pact type of operation as related to the issue of corruption. They are not inclined to be pushed into unilateral cancellation of commitments. And they don't think they will be.

The ban is merely a statement of policy. It urges all unions to keep faith, directly and indirectly, with trade union morality and concludes with this declaration: "Therefore, this Executive Council declares it to be the policy of the AFL-CIO that all alliances, formal or informal, between any affiliate and the International Brotherhood of Teamsters be canceled."

The policy statement sets no deadline or cut-off date. It contains no enforcement machinery. And it specifically exempts "day-to-day relationships" between teamsters and other craft members at the local level on the ground that such "understanding and cooperation" is based on elementary trade union principles.

The only way the ban can be enforced, in the final analysis, is to expel the offending unions. And few feel that such drastic action would be taken where the principal beneficiaries are local rather than international unions.

• Corruption—The same type of persuasion and realistic procrastination, coupled with the same refusal to compromise its anti-corruption principles, was taken by the AFL-CIO in the field of corruption.

In the two building trades cases—operating engineers and carpenters—the approach, though stern, is slow and cautious.

Rumblings of corruption in both unions have been heard on Capitol Hill for many months. And since last February the federation's Ethical Practices Committee has had the operating engineers union under investigation.

The committee found that the union, under the leadership of reform President Joseph J. Delaney, has made considerable progress in correcting abuses within the union. But it has recommended that further action be taken in several areas and that the union be given more time in which to do it. Withdrawal from the Four-Way Pact was not one of the mandates.

The AFL-CIO Executive Council last week agreed to go along. The investigation has been held "in abeyance with jurisdiction retained," pending "full compliance" with the recommendations. Mr. Delaney's union has thus been given a reprieve and the AFL-CIO has virtually eliminated the risk of losing another affiliate.

In the case of the carpenters—another Four-Way Pact union—the federation's action was also temperate. A formal investigation could have been launched immediately. The federation, instead, has stalled for time.

Mr. Meany is asking the union for a full report on Senate Select Committee allegations of "abuses and corruption" within the union. The report will be considered at the fall meeting of the Executive Council.

And union President Maurice Hutcheson will be asked to appear personally before the council at that time to "explain" his refusal to answer committee questions regarding "misuse of union funds." At that time the council will decide whether the Ethical Practices Codes have been violated and what to do about it. But even then months could be consumed by a federation investigation before any decisive action is taken.

• Organizing—The same approach was taken by the AFL-CIO to an interdepartmental dispute that represents a basic issue in the labor merger.

That is a dispute over whether union efforts to organize new members must be conducted by individual unions or whether they can be conducted in the name of and by a department, with new members thus obtained later allocated to member unions.

The problem arose at Ormet Aluminum Co., Burnside, La. Workers were organized by the Metal Trades Council,

whose name was put on the election ballot by the National Labor Relations Board. Protests were registered by the steelworkers, and the Industrial Union and Building Trades Departments entered the fight.

Just as it has done in the still-unsettled jurisdictional dispute between craft and industrial unions, the Executive Council has avoided a final or decisive decision. The dispute has been referred to a special two-man committee, assisted by Mr. Meany. The committee is instructed to report back to the Executive Council in the fall.

Net result of these decisions is that the AFL-CIO has emerged from another crisis more respected in the eyes of the public but without foundering on the rocks of its own internal problems and conflicts.

NLRB Stands Firm

Board refuses to make a work assignment

The National Labor Relations Board has reaffirmed its policy of refusing to make an affirmative award in a work assignment dispute.

It did so by accepting a trial examiner's findings in a jurisdictional dispute between carpenters and laborers over scaffolding work in East St. Louis.

Gist of the finding was that NLRB need not determine who disputed work belongs to when it enters a jurisdictional dispute and satisfies the law by merely finding that the offending union is not entitled to the work.

This type of negative decision has long been questioned. And the carpenters have been pushing the issue since last December by refusing to obey a picketing injunction on the grounds that the board had failed to determine the dispute affirmatively.

Following its policy of not ruling on the merits of a jurisdictional dispute, the board at that time said the carpenters weren't entitled to the work and ordered them to cease their picketing of a brick contractor.

When the carpenters were cited before the board again for continuing their strike in violation of the NLRB order, the trial examiner refused to find the order defective. It's this finding that the NLRB has now adopted.

The result is that in the absence of a different ruling by the Supreme Court, unions and employers in the construction industry can turn only to the National Joint Board for the Settlement of Jurisdictional Disputes for a resolution of work assignment disputes on their merits.

Reprieve Granted

Hiring hall deadline is extended in some cases

Contractors and construction unions have been given a limited reprieve on hiring hall violations.

Those who are in the process of negotiating corrective clauses in their collective bargaining agreements now have until November 1 to comply with the Taft-Hartley Act ban on discriminatory hiring arrangements before stiff penalties will be applied.

The qualified reprieve was granted last week by National Labor Relations Board General Counsel Jerome D. Fenton, who had earlier granted a general extension to September 1.

Its effect is to delay until November 1 the full application of the Brown-Olds remedy in those cases where a conscientious effort is being made to comply voluntarily with the law as interpreted by the NLRB in the Mountain Pacific case. Under the Brown-Olds rule, contractors and unions are jointly and severally liable for all union dues and assessments collected while operating a hiring arrangement that discriminates against nonunion members. Mr. Fenton, however, refused to grant a general extension although he conceded the complexity of the problems involved. This is what he said:

"Under all the circumstances, we have determined that no general extension of the policy withholding the full application of the Brown-Olds remedy beyond September 1 is warranted. However, where the parties have initiated steps and have made genuine efforts to correct their union security and hiring arrangements prior to the September 1 deadline, the full application of the remedy may be withheld provided that conformity with the act is achieved by November 1, 1958."

Licensing of Contractors Is Urged by Carpenters

Union carpenters in Texas plan a new push for a law to require all building contractors operating in the state to be licensed.

A. J. Christian, Dallas member of the Executive Board of the Texas State Council of Carpenters, says the board has approved a resolution calling for a bill that would require contractors to put up performance bonds and to pass certain ability tests or standards.

Objections were voiced by Julian Capers, director of the Dallas Contractors Association. It believes in open competition, fewer controls.

A Painter Honored

Union president Raftery joins AFL-CIO Council

L. M. Raftery, general president of the painters union, was elected a vice president of the AFL-CIO last week. He fills a vacancy created by the resignation of James C. Petrillo, retiring president of the musicians' union.

The election automatically makes Mr. Raftery a member of the federation's 29-member Executive Council. It gives the building trades unions six representatives in the top command.

A painter, a building tradesman and a union man since his childhood in St. Louis, Mr. Raftery is also a vice president and council member of the AFL-CIO Building and Construction Trades Department.

The other building tradesmen who are members of the AFL-CIO Executive Council are Harry C. Bates, bricklayers; Maurice A. Hutcheson, carpenters; Joseph D. Keenan, electrical workers; Charles J. MacGowan, boilermakers; and Peter T. Schoemann, plumbers.

Cleveland Wage Scales Top Those in Other Areas

Union wage scales in the Cleveland building trades now average $3.57 an hour, the U.S. Department of Labor said last week. This is 34 cents an hour higher than the national average.

The Cleveland average tops that of all major cities in the country's heavy industry areas.

The national average—$3.24 an hour—represents an increase of 15 cents, or 5%, over the January, 1957, figure, according to the department.

A Big Pension Plan

Western carpenters and AGC agree on terms

A pension plan for some 40,000 northern California carpenters and piledrivers—called one of the largest and most comprehensive in the construction industry—has been approved by the carpenters and piledrivers unions and the northern and central California Chapters, Associated General Contractors.

The plan covers three groups that bargain separately—the four-county Bay Area carpenter group, the 42-county carpenters group embracing the rest of northern California, and piledrivers in 46 counties.

It is expected to cost the employers more than $4.5 million a year.

Under the plan, carpenters and piledrivers can retire at 65 and, if they have at least 25 years of service in northern California, they can get pension benefits of $50 a month. A 2½ year minimum was set on the benefits, so if they die before that time their beneficiaries will get the money. The plan also provides for disability benefits for workers 50 years old or more with at least 15 years of service.

A joint board of trustees—seven from the employer side, an equal number from the union side—was named to administer the pension trust fund.

Piledrivers and members of the four-county carpenters group will be eligible for benefits as of July 1, 1958. The 42-county carpenters will become eligible January 1, 1960.

The employer's contribution to the pension fund is 10 cents per hour. Employers have been contributing for the four-county carpenters and piledrivers since June of last year. They start contributing next January for the 46-county carpenters.

The piledrivers, like the two other groups involved, are members of the United Brotherhood of Carpenters and Joiners of America.

Novel Plan Is Proposed For Longer Jobless Pay

Use of a state's general revenue or building funds to finance an extension of jobless pay benefits has been proposed in Kentucky.

Governor Chandler is not receptive. He says the building funds will provide construction jobs and are "badly needed" for building purposes.

Reason for the proposal is this: The burden of the recession should not be borne by employers alone through higher payroll taxes, but should be shared by the general public.

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY.

Bids: September 25, 1958.

Town of Waterford

NOTICE TO CONTRACTORS

Sealed bids for furnishing labor, materials and equipment and rehabilitating and enlarging the present Filter Plant, new coagulating and settling basins, new wash water and clear water standpipe with foundation, together with furnishing and installing miscellaneous material and equipment for the Water Commissioners of the Town of Waterford, New York will be received at the office of the Water Commissioners, Second Street Pumping Station, Waterford, New York, until 8:00 o'clock P.M., Eastern Daylight Saving Time on the 25th day of September, 1958, and then at said office, publicly opened and read aloud.

The work to be done has been divided into seven sections; bidders may submit proposals on any or all sections.

Section A

General construction of the coagulating and settling basins, raw water intake structure, piping, aerator piping, drain lines, flash mixer and coagulating machinery, foundation for wash water and clear water tank, setting and connecting, but not furnishing raw water pumps, etc.

Section B

Rehabilitation of existing filters, new piping in pipe gallery, chemical feeders and piping, water level, controls, setting and connecting, but not furnishing low lift and high lift pumps, etc.

Section C
Heating Work

Section D
Electrical Work

Section E

Furnishing and erecting wash water and clear water standpipe.

Section F
Removing existing boilers

Section G

Furnishing raw water, low lift and high lift pumps.

The information for Bidders, Form of Contract, Plans and Specifications and Form of Performance Bond may be examined at the office of the Water Commissioners at the Water Works Pumping Station on Second Street, Waterford, New York and at the office of Keis and Holroyd, Consulting Engineers, 257 Broadway, Troy, New York. Copies thereof may be obtained at the said offices of the Water Commissioners or Keis & Holroyd, upon payment of $25.00 for each set. Any bidder upon returning such set promptly in good condition, will be refunded his payment and any non-bidder upon so returning such set within 30 days of date for receiving bids, will be refunded $20.00.

The Water Commissioners, Waterford, New York, reserve the right to waive any informalities in or to reject any or all bids.

A certified check made payable to the order of the Water Commissioners of the Town of Waterford, New York, or bid bond in amount of 5% of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, within 5 days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so, he shall forfeit the deposit as liquidated damages, and acceptance of the bid will be contingent upon the fulfillment of this requirement by the bidder.

The successful bidder will be required to furnish a performance bond satisfactory to the Water Commissioners of the Town of Waterford, New York, in the amount of the contract, and having as surety thereon such surety company or companies as are acceptable to the Water Commissioners of the Town of Waterford, New York.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above schedule time for the opening of bids or authorized postponement thereof.

W. LEE BLOOD,
President

Dated: August 18, 1958
KEIS & HOLROYD
CONSULTING ENGINEERS
TROY, NEW YORK

Bids: September 29, 1958

Fort Lauderdale, Florida
Project No. 630

NOTICE TO BIDDERS

Sealed proposals will be received until 11:00 A.M., EST, September 29, 1958, in the office of the City Manager of Fort Lauderdale, Florida, for construction of Project No. 630, First Addition to Fiveash Water Treatment Plant.

Bidding blanks may be obtained from the office of the City Engineer. Plans, specifications and contract documents are on file in the office of the City Engineer.

A deposit of $25.00 for plans and specifications, and of $15.00 for each additional set of plans or specifications, will be required. All deposits for plans and specifications will be refunded upon their return in good condition within 10 days of the opening of bids.

A certified check, cashier's check or bank officer's check for 5% of the total amount of the bid, made payable to City of Fort Lauderdale, Florida, or bid bond in said amount written by a qualified corporate surety company, executed and issued by a Resident Agent licensed by and having office in the City of Fort Lauderdale, Florida, representing such Corporate Surety, shall accompany each proposal as evidence of the good faith and responsibility of the bidder. This check or bond shall be retained by the payee as liquidated damages should the bidder refuse or fail to enter into a contract with the payee for the execution of the work embraced in the proposal, in the event the proposal of the bidder is accepted.

The City of Fort Lauderdale reserves the right to waive any informality in any bid, and to reject any or all bids.

W. J. Veeder
City Manager

U. S. Government

INVITATION FOR BIDS. Sealed bids, in triplicate, will be received at the Office of the Regional Director, Housing and Home Finance Agency, O. A., Room 906, 346 Broadway, New York 13, N. Y., until 12:00 o'clock P.M. (E.D.S.T.) on the 16th day of September, 1958, and then publicly opened and read aloud for furnishing all labor and material and performing all work for the construction of an elementary school at Plattsburgh Air Force Base, Plattsburgh, New York, including General Construction, Heating and Ventilating, Plumbing, Electrical Work and Fixtures, and Site Work. The Instructions to Bidders, Form of Bid, Form of Contract, General Conditions, Specifications, Plans and Form of Bid Bond, Performance Bond and Payment Bond, may be examined at the Office of the Base Installations Officer at Plattsburgh Air Force Base, Plattsburgh, New York, or at the offices of Knappe and Johnson, 2110 Northern Boulevard, Manhasset, New York or Two Overhill Road, Scarsdale, New York, or at the Office of the Regional Director, Housing and Home Finance Agency, O. A., Room 906, 346 Broadway, New York 13, N. Y., and copies thereof obtained at either of said offices upon payment of $7.50 for each complete set of documents, which fee shall not be refunded and the documents shall remain the property of the prospective bidders. Such fee shall be in the form of a certified check, bank cashier's check, or postal money order, made payable to the Housing and Home Finance Agency, O. A., RALPH B. CORNELL, Regional Director, CFA.

OFFICIAL PROPOSAL

RATE: $2.40 per line (or fraction) per insertion.

CLOSING DATE: 10:30 a.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, P. O. Box 12, New York 36, N. Y.

OFFICIAL PROPOSALS

Bids: September 18, 1958

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Canal Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 18th day of September, 1958, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following Projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson, District Engineer, 333 Broadway, Albany 1, New York						
Essex (Rte. 73)	RC 58-121	Village of Lake Placid: Sentinel Road, S.H. 9319	0.07	Asphalt Concrete Prestressed Conc. Br. 34′	$6,000 Plans $2	$110,000
Saratoga (Rte. 67)	FARC 58-131	Ballston Spa Scotch Church Pts. 1 & 2, S.H. 5534-5542 Project DS 382(2)	5.21	Asph. Conc. = 5.15 Mi. Misc. Work = 0.06 Mi. Reinf. Conc. Box Br. 20′	$50,000 Plans $5	892,000
Warren (Rte. 9 & 9L)	RC 58-135	Various Locations on S.H. 417, S.H. 5068, S.H. 5227, S.H. 5157, S.H. 5158, S.H. 1595, S.H. 691, and S.H. 1666	.....	Roadside Development	$700 Plans $2	13,000
Washington (Rte. 40)	FARC 58-127	Middle Falls South Argyle, S.H. 1759 South Argyle-Argyle, S.H. 1081 Project DF 1033(2)	5.89	Asph. Conc. = 5.83 Mi. Misc. Work = 0.06 Mi.	$54,000 Plans $3	988,000
DISTRICT No. 2, L. Ketchum, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Montgomery (Rte. 30)	FAC 58-16	City of Amsterdam: North-South Arterial (Rte 55 to Mohawk River) Project U-UG-604(5)	0.63 (1.34 Acc.)	Asph. Conc. Ty. 1A = 0.63 Mi. Acc. Asph. Conc. Pavt. = 1.11 Mi. Acc. Cem. Conc. Pavt. = 0.23 Mi. 2 Hy. Sep. Comp. W-F Beams 166.4′ & 171.5′ 1 Hy. Sep. Reinf. Conc. Rigid Frame 36′ 1 Hy. RR Sep. Comp. W-F Beam 169.2′	$115,000 Plans $10	2,054,000
DISTRICT No. 3, E. E. Towlson, Acting District Engineer, 333 E. Washington Street, Syracuse, New York						
Cayuga (Rte. 38)	FARC 58-128	Wyckoff Cascade Pt. 3, S.H. 8267 Cascade Moravia, S.H. 1642 Project F 431(4)	4.13	Asphalt Concrete Prestressed Conc. Beam Br. 172′	$52,000 Plans $3	944,000
Oswego	U.S. 100	Lock 3, Oswego Canal, Fulton, New York	.....	Extending Existing Gates, Lowering & Replacing Existing Sills & Misc. Work	5% of Bid Plans $10	Confidential
Cayuga & Tompkins (Rtes. 38, 326, 34B, 38A, 90, 79, 13, 227, 13A, 34, 327, & 96B)	RC 58-126	Various Locations on S.H. 752, S.H. 1173, S.H. 5689, S.H. 5525, S.H. 383, S.H. 8406, S.H. 1877, S.H. 1004, S.H. 338, S.H. 483, S.H. 1001, S.H. 1431, S.H. 1532, S.H. 72, S.H. 681, S.H. 5575, S.H. 1891, S.H. 5567, S.H. 1189, and S.H. 5122	.....	Roadside Development	$500 Proposal Only $2	9,000
Cortland & Tompkins (Rte. 222)	FARC 58-124	Cortland Groton Pts. 1, 2, 3 & 4, S.H. 446, 996, 1433 Project S 478(1)	5.46	Asphalt Concrete, Type 1A Comp. I Beam 132′	$53,000 Plans $3	949,000
Onondaga	RC 58-136	Baldwinsville Cicero, S.H. 1039	.....	Cleaning & Painting 1 Bridge	$500 Plans $2	9,000
Onondaga	FASS 58-10	Brewerton Connection to Interstate Route 505 Project S 538(1)	0.45	Asphalt Concrete	$5,000 Plans $2	88,000
Seneca (Rte. 96A)	FARC 58-122	Lodi Interlaken, S.H. 5589 Project DS 463(1)	4.99	Asphalt Concrete	$30,000 Plans $3	592,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Genesee & Wyoming	FASSH 58-10 FASSH 58-11	Attica Darien Pt. 2 Attica Darien Pt. 1 Project S 495(1)	4.17	Asphalt Concrete	$30,000 Plans $3	573,000
Monroe	LOSP 58-2	Lake Ontario State Parkway, (Sections A and B)	9.17	Asph. Conc. = 7.34 Mi. Misc. Work = 1.83 Mi.	$55,000 Plans $10	1,001,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, State Office Bldg., 65 Court Street, Buffalo, New York						
Erie	FAC 58-19	City of Buffalo: Kensington Expressway Arterial Highway, Sect. 1 (Maple St. to Landon St.) Project U 377(16)	1.69	Grading & Trunk Sewer = 1.15 Mi. Trunk Sewer = 0.24 Mi. Water Lines = 0.30 Mi.	$170,000 Plans $10	3,081,000
Erie	FAC 58-17	City of Buffalo: Kensington Expressway Outlet Sewer (Swan St. to Hickory St.) Project U 377(15)	1.10	9′ Reinf. Conc. Pipe Sewer = 0.83 Mi. 8′ Reinf. Conc. Pipe Sewer = 0.25 Mi. Misc. Work = 0.02 Mi.	$120,000 Plans $3	2,180,000
Erie (Rte. 422)	FARC 58-133	Jamison East Elma, S.H. 925 Project DS 409(2)	4.93	Asph. Conc. = 4.90 Mi. Misc. Work = 0.03 Mi.	$40,000 Plans $3	734,000
Niagara (Rte. 31)	FARC 58-108	Niagara Falls Sanborn, S.H. 5305 Sanborn Pekin, S.H. 740 Project DF 1088(2)	6.50	Asph. Conc. = 6.46 Mi. Misc. Work = 0.04 Mi.	$43,000 Plans $2	774,000
DISTRICT No. 6, J. H. Thomas, District Engineer, State Office Building, 30 West Main Street, Hornell, New York						
Steuben (Rte. 225)	FARC 58-123	Caton Corning, S.H. 850 Project DS 734(2)	0.10	Asphalt Concrete	$3,000 Plans $2	52,000
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee Street, Watertown, New York						
Clinton	FISH 58-25	Interstate Route 502, Sect. 7D-2 (Ridge Road to Canadian Border) Project I-1119(12)	2.57 (4.50 Acc.)	Asph. Conc. = 6.99 Mi. Top Crse. Graded Gravel = 0.06 Mi. Misc. Work = 0.02 Mi. 1 Hy. RR Sep. Comp. I Beam 458.5′ 2 Hy. Seps. Comp. I Beam 314.8′ & 214.5′ 1 Br. Comp. I Beam 270′	$250,000 Plans $20	4,563,000
Franklin (Rte. 37)	FARC 58-134	Malone Fort Covington Pt. 1, S.H. 884 Project DF 580(13)	2.25	Asph. Conc. = 2.19 Mi. Misc. Work = 0.06 Mi.	$23,000 Plans $3	413,000
Jefferson (Rte. 177)	FARC 58-129	Adams Center Tremaines Corners, S.H. 835 Tremaines Corners Barnes Corners Worth Corners, S.H. 1751 Project F 864(4)	5.53	Asphalt Concrete Comp. I Beam Br. 84.3′ Reinf. Conc. Open Box Br. 28.3′	$80,000 Plans $10	1,559,000
DISTRICT No. 8, K. G. Rauer, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Orange (Rte. 6)	FARC 58-132	Middletown Goshen, S.H. 95 New Jersey State Line Unionville New Hampton Denton, S.H. 500 Project DF 345(4)	0.93	Asphalt Concrete	$22,000 Plans $2	388,000
Orange (Rte 9W)	RC 58-60	West Point Military Reservation Cornwall Pt. 1, S.H. 8500	0.18	Asphalt Concrete	$3,000 Plans $2	51,000
Putnam (Rte. 6)	FARC 58-120	Brewster Carmel, S.H. 909 Project DF 590(5)	1.43	Asphalt Concrete	$15,000 Plans $2	273,000
Putnam (Rte. 6)	FGRC 58-24	Brewster Carmel, S.H. 909 Project DFG 590(3)	0.14	9″ Cem. Conc. Pavt. 24′ Wide R.R. Hy. Sep. Pl. Girder 103.6′	$19,000 Plans $2	349,000
Westchester	FINET 58-3 NET 58-4	Interstate Route 501 (N. Y. State Thruway, New England Section, Subs. 1, 2A, 2, 3, 4 and 5) and New York State Thruway—New England Section Project I 1068(19)	11.31	Lighting System	$55,000 Plans $3	963,000
DISTRICT No. 9, J. C. Frederick, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome	FISH 58-7	Interstate Route 505, Penn. State Line to Five Mile Point Cont. No. 1 (Penn. St. Line to Blakesley Rd.) Project I 1127(5)	3.04 (0.60 Acc.)	Grading & Drainage 6 Hy. Segs. Comp. I Beams 137.4′, 127.1′; 187.5′; 192.3′; 141′ & 141′ 1 Reinf. Conc. Box Br. 20.8′	$165,000 Plans $20	2,819,000
Chenango (Rte. 12)	FAC 58-18	City of Norwich: Arterial Highway (South and North Broad St.) Project U 878(3)	1.02	Asph. Conc. Ty. 2B = 1.01 Mi. Misc. Work = 0.01 Mi.	$40,000 Plans $3	733,000
Sullivan (Rte. 97)	FARC 58-125	Mongaup Pond Eddy, S.H. 1483 Pond Eddy Barryville, S.H. 8352 Project DF 502(16)	6.66	Asphalt Concrete Widen Exist. 46′ Reinf. Conc. Beam Br.	$62,000 Plans $5	1,137,000
DISTRICT No. 10, M. E. Goul, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Nassau (Rte. 27, 115)	FARC 58-130	Conduit Boulevard Pts. 3, 4, & 5, S.H. 1699A, 1699B; 5701A Wantagh Central Park Pt. 1, S.H. 1798 Project U 947(16)	4.04	½ 9″ Cem. Conc. Pavt. ½ Asph. Conc. } = 2.93 Mi. 9″ Cem. Conc. Pavt. = 0.09 Mi. Asph. Conc. = 0.50 Mi. Misc. Work = 0.52 Mi.	$195,000 Plans $5	3,547,000

(Continued on the following page)

OFFICIAL PROPOSALS

(Continued from page 87)

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Bids: September 11, 1958

Benjamin Franklin and Walt Whitman Bridges
Contract No. 102

DELAWARE RIVER PORT AUTHORITY
of the
COMMONWEALTH OF PENNSYLVANIA
and the
STATE OF NEW JERSEY
Administration Building
Camden, New Jersey

Sealed bids will be received for Miscellaneous Paving, and Paving Repairs for the Benjamin Franklin and Walt Whitman Bridges, known at Contract No. 102, at the office of the Executive Director of the Delaware River Port Authority, Administration Building, Benjamin Franklin Bridge Plaza, Camden, New Jersey, until 2:30 P.M., Eastern Daylight Saving Time, Thursday, September 11, 1958, at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon deposit of a $10.00 check, which will be remitted upon receipt of bid or the return in good condition of the copies so taken, within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $10,000 payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania or Camden, New Jersey, and must not be enclosed with the sealed bid. The surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialman's Bond in the sum of 100 percent.

The Authority will afford prospective bidders an opportunity to inspect the site of the Work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the Contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO
EXECUTIVE DIRECTOR

OFFICIAL PROPOSALS

Bids: September 12, 1958.

Port Reading Grade Crossing Elimination Project

WOODBRIDGE-CARTERET ROAD
TOWNSHIP OF WOODBRIDGE, COUNTY OF MIDDLESEX, STATE OF NEW JERSY
THE CENTRAL RAILROAD COMPANY OF NEW JERSEY
UNDER ORDER OF THE PUBLIC UTILITY COMMISSION, STATE OF NEW JERSEY

Sealed proposals will be received by The Central Railroad Company of New Jersey, at the Office of the Chief Engineer, located at Jersey City Terminal, Room 44, Foot of Johnston Avenue, Jersey City, New Jersey, until 1:00 PM, D.S.T., on Friday, September 12, 1958, and publicly read at that time, for the:

Construction of a bridge and approaches to carry the Woodbridge-Carteret Road over the two Main Line tracks of The Central Railroad Company of New Jersey, a bridge and approaches to carry the Woodbridge-Carteret Road over the two Main Line tracks and one Wye track of the Port Reading Railroad, storm drainage system for roadways and grounds, and related street changes.

Principal Quantities	Involved:
93,550 cu. yds.	Embankment fill
3,710 cu. yds.	Roadway excavation
11,050 sq. yds.	6" sub-base Class "A" road gravel
10,400 sq. yds.	Top soiling
11,050 sq. yds	6" macadam base course
2,880 tons	Bituminous concrete surface course hot-mixed
1,360 cu. yds.	Class "A" concrete
1,080 cu. yds.	Class "B" concrete
340,500 lbs.	Reinforcement steel
953,200 lbs.	Structural steel
7,460 lin. ft.	Steel bearing piles
9 each	Catch basins
3,240 lin. ft.	6" concrete curbs
3,750 lin. ft.	8" concrete curbs
250 lin. ft.	Concrete headers
2,890 sq. yds.	4" concrete sidewalks
1,690 lin. ft.	R.C. pipe
3,368 cu. ft.	Concrete crib walls
4,110 lin. ft.	Wire rope fence
Lump Sum	Demolition of Buildings

Proposals forms, drawings, specifications, and the bid deposit shall be returned to the bond and insurance requirements may be obtained upon application at the Office of the Chief Engineer of the Railroad Company, at the above address, on or after August 18, 1958, by depositing $25.00 per set. A refund in full will be made to bidders upon return of each set in good condition within 30 days of award or rejection of bids.

This work will be awarded as a general contract and the successful bidder will be required to perform with his own organization not less than 80% of the total value of the contract, except for materials or items of work which require specialized knowledge, craftsmanship or equipment not ordinarily available in the contractor's organization.

Bids must be made upon the standard proposal forms furnished for this purpose by the Railroad Company and must be enclosed in sealed addressed envelopes bearing, on the outside, the name and address of the bidder and the contract work bid upon, and must be accompanied by a certified check drawn to the order of the Treasurer of The Central Railroad Company of New Jersey, in the amount of $15,000. Bids and checks not enclosed in sealed addressed envelopes will be considered informal and will not be opened.

The Railroad Company and/or the Board of Public Utility Commissioners reserve the right to reject any or all proposals.

R. J. Minetti, Chief Engineer
THE CENTRAL RAILROAD COMPANY OF NEW JERSEY
JERSEY CITY TERMINAL, JERSEY CITY 2, N. J.

Bids: September 11, 1958.

Power Authority of the State of New York

For the Furnishing and Delivery of Towers, Guides and Sills for Lewiston Power Plant and Conduit Outlet Stoplogs
Structure of Waterways
Specifications No. PA-N-23012
Niagara Contract No. NP24

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the furnishing and delivery thereof f.o.b. destination, Niagara Falls, Niagara County, New York, of the towers, guides, and sills for the Lewiston Power Plant and conduit outlet stoplog structure of the waterways until 11:30 A.M., Eastern Daylight Saving Time on the 11th day of September, 1958, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be opened and read aloud.

The work consists of fabricating, furnishing and delivery thereof of approximately 2,530 tons of embedded structural steel towers, guides and sills for the draft tube gates, trash racks, stoplogs and intake gates for the Lewiston Power Plant, and head beams, guides and sills for the conduit outlet stoplog structure of the waterways.

Delivery of the above items will be required beginning February 1, 1959.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, at The Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, and in the office of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee (certified check or bid bond) will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. Chapin
General Manager

Bids: September 16, 1958

Contract TA-150.002

THE PORT OF NEW YORK AUTHORITY
TETERBORO AIRPORT
DEMOLITION OF MOONACHIE SCHOOL

Sealed proposals for the demolition of Public School No. 2 in the Borough of Moonachie, New Jersey, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 1, N. Y., until 2:30 P.M. on Tuesday, September 16, 1958 at which time said proposals will be opened and read in Room 1108.

Contract Documents may be seen at the office of the Engineer of Design of the Authority, Room 1115, and copies will be furnished upon request. No deposit will be required but the documents shall be returned in good condition not later than forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, August 28, 1958

Prequalification Date: September 4, 1958

Board of Education Bureau of Construction

Notice Re: Prequalification forms of Contractors

NOTICE IS HEREBY GIVEN THAT The Superintendent of School Buildings, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, N. Y. will receive application for prequalification from contractors who may wish to submit bids for the proposed hereinafter specified contracts as follows:

General Construction, Plumbing and Drainage, Heating and Ventilating, Electrical Work and Lighting Fixtures for the new Public School 51, The Bronx, 158th Street and Trinity Avenue, Junior High School 99, Manhattan, 1st Avenue and East 100th Street.

Prequalification application forms will have to be secured from and must be submitted to the Superintendent of School Buildings, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, N. Y.

Bids when advertised, will be received from prequalified bidders only.

Time for submitting prequalification application by contractors will expire on Thursday, September 4, 1958.

City Record—Monday, August 25, 1958

WILLIAM H. CORREALE
Superintendent of School Buildings,
Design and Construction
Dated: August 15, 1958

OFFICIAL PROPOSALS

Bids: September 25, 1958

City of Springfield, Missouri
Sewage Works Improvements
Divisions F, L and O

ADVERTISEMENT FOR BIDS

The City of Springfield, Missouri will receive sealed Proposals for the construction of Main Trunk Sanitary Sewers until 10:00 A.M., Central Standard Time, on the 25th day of September, 1958, at the office of the City Clerk, Springfield, Missouri.

All Proposals received will be publicly opened and read aloud in the City Council Chambers at Springfield, Missouri, beginning at 10:00 A.M., Central Standard Time, on the 25th day of September, 1958.

The Contract Documents including plans and specifications are on file and available for inspection at the office of the Director of Public Works of the City of Springfield at Springfield, Missouri, and at the office of Consoer, Townsend & Associates, Consulting Engineers, 360 E. Grand Avenue, Chicago 11, Illinois.

Copies of Documents including plans and specifications required for review or bidding purposes may be obtained only from the Director of Public Works by depositing $20.00 for proposed Division F, $20.00 for proposed Division L, and $20.00 for proposed Division O at the office of the Director of Public Works for each set of Documents so obtained.

Since the Documents excluding the plans comprise forms, information and specifications applicable to all three (3) Divisions, a single Document will be issued upon requests for plans for one or for more than one Division.

The full amount of the deposit for one set of Documents and one-half of the deposit for any additional sets of Documents will be refunded to each bidder who submits a formal Proposal to the City of Springfield and who also returns the plans (and specifications on additional sets) in good condition to the Director of Public Works within ten (10) days after his bid security has been returned to him.

Equipment manufacturers, subcontractors, and others who do not submit formal Proposals to the City of Springfield will be refunded one-half the amount of the deposit for all sets of complete Documents including plans and specifications returned in good condition to the Director of Public Works within ten (10) days after the opening of bids. No refund will be made for Documents received by the Director of Public Works after this ten (10) day period.

A certified check or bank draft, drawn on a solvent bank, payable without condition to the City of Springfield, Missouri in an amount not less than five percent (5%) of the bid shall be submitted with each Proposal as a guarantee that if the Proposal is accepted by the City of Springfield a contract will be entered into and the performance of the contract properly secured.

No bid shall be withdrawn after the opening of Proposals without the consent of the City of Springfield, Missouri for a period of thirty (30) days after the scheduled time of closing bids. The bid securities of all bidders, except that submitted with the lowest acceptable Proposal on each Division, will be returned within ten (10) days after the time of opening bids. The bid security of the lowest acceptable Proposal on each Division may be held by the City of Springfield until a construction contract has been executed and a satisfactory Performance Bond and a satisfactory Labor and Material Bond in the sum of the full amount of his contract has been delivered to the City.

The City of Springfield reserves the right to reject any or all Proposals and to waive any informalities or irregularities in the bids received, or to accept any Proposal on any one Division or a combination of Divisions which is deemed most favorable to the City at the time and under conditions stipulated in the Instructions to Bidders.

The improvements on which Proposals are solicited are divided into three (3) Divisions, and bidders may submit a Proposal on any one or on all Divisions as listed in the Proposal Form. The Proposal on each Division shall include the furnishing of all labor, materials, equipment, tools, supplies, etc., for a complete operating installation. The work to be constructed under each Division is briefly described as follows:

DIVISION F—SOUTH CREEK TRUNK SEWER

This Division includes the furnishing and installation of approximately 24,000 lineal feet of reinforced concrete and vitrified tile pipe sewers in 12", 18", 30" and 36" sizes, complete with appurtenances.

DIVISION L—WEST CREEK TRUNK SEWER

OFFICIAL PROPOSALS

This Division includes the furnishing and installation of approximately 19,000 lineal feet of reinforced concrete and vitrified tile pipe sewers in sizes ranging from 8" to 36", complete with appurtenances.

DIVISION O—EAST SIDE TRUNK AND RELIEF SEWERS

This Division includes the furnishing and installation of approximately 12,500 lineal feet of reinforced concrete, cast iron and vitrified tile pipe sewers in sizes ranging from 8" to 30", complete with appurtenances.

Plans and Specifications for this project were prepared by Consoer, Townsend & Associates, Consulting Engineers, 360 E. Grand Avenue, Chicago 11, Illinois.

Dated at Springfield, Missouri
this 12th day of August, 1958.

CITY OF SPRINGFIELD, MISSOURI
W. B. Avery
City Manager

Bids: September 5, 1958

Washington Suburban Sanitary Commission

CONTRACT NO. 2223-W
FURNISHING AND DELIVERING
CAST IRON WATER PRESSURE PIPE

Sealed proposals for furnishing and delivering 5,000 lineal feet 3"; 500 lineal feet 4" Mechanical Joint Pipe; 50,000 lineal feet 6"; 65,000 lineal feet 8"; 15,000 lineal feet 10"; 8,000 lineal feet 12"; 200 lineal feet 14"; 500 lineal feet 16" Cast Iron Slip Joint Pipe. Alternate bids on the above will be taken on Mechanical Joint Pipe. Bids will be received in the office of the Purchasing Agent, Room G-13 of the Washington Suburban Sanitary Commission, 4017 Hamilton Street, Hyattsville, Maryland, until Friday, September 5, 1958 at 10:30 A.M. Eastern Daylight Time, at which time and place they will be publicly opened and read.

Specifications may be obtained from S. Z. Salsberry, Purchasing Agent of the Commission.

T. Earle Bourne, Chairman
Frank L. Hewitt, Jr. V-Chairman
J. Norman Ager
James B. Bland
Willard A. Morris
L. S. Ray
Commissioners

Attest:
John C. Bonifant
Secretary

Bids: September 11, 1958

Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS
For Furnishing and Delivery of
Intake Gate Hoists for
Lewiston Power Plant
Specifications No. PA-N-23015
Niagara Contract No. NP25

NOTICE TO CONTRACTORS: The Power Authority of the State of New York will receive sealed proposals for the furnishing and delivery thereof f.o.b. University Siding, Lewiston Power Plant Area, New York, of 26 intake gate fixed hoists for the Lewiston Power Plant in Lewiston, Niagara County, New York, until 10:30 A.M., Eastern Daylight Saving Time on the 11th day of September, 1958, at the Authority's office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be publicly opened and read aloud.

Bids will be entertained for furnishing and delivery of twenty-six 100-ton capacity intake gate hoists complete with appurtenances for the 26 intake gates for the Lewiston Power Plant. First delivery will be required March 1, 1960.

All work shall be completed on or before June 1, 1960.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten ($10.00) Dollars per initial set of contract documents, and Five ($5.00) Dollars per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the gross sum bid.

OFFICIAL PROPOSALS

The right is reserved to reject any or all bids.

W. S. Chapin
General Manager

Bids: September 18, 1958

Commonwealth of Pennsylvania

Department of Mines and Mineral Industries
Harrisburg, Pennsylvania
Instructions to Bidders

1. Sealed proposals will be received by the Department of Mines and Mineral Industries, Main Capitol Building, Harrisburg, Pennsylvania, until 11:00 A.M., Eastern Daylight Saving Time, the 18th of September, 1958 at which time and place they will be opened and read aloud, for the following:

2. Furnishing all labor, equipment, and materials to install four (4) deep well pumps, motors, power substation and controls as purchased and furnished under Flood Control Project No. 4, Phase "A" and also to furnish demolition and removal of structures and facilities at the site, and also to furnish and install excavation, foundations, grading and site work, protective fencing, discharge piping and fittings, pole line, electrical work, structural steel hoist tower, hoist, hoist house, and miscellaneous tools for erection and maintenance of the pumps.

3. Location of the project—Hoyt Shaft, Ewen Colliery, Pennsylvania Coal Company, Jenkins Township, Luzerne County, Pennsylvania.

4. This project is one to the cost of which the United States Government may contribute under Public Law 162, 84th Congress (69 stat. 352) and is subject to the terms of that Law, as well as to Act No. 82, July 7, 1955, Commonwealth of Pennsylvania, and to the "Procedures for Administration of Resources Through Measures for Flood Control and Anthracite Mine Drainage, (Public Law 162, 14th Congress, 69 Stat. 352)", and to the State-Federal Contribution Contract for Flood Control Contract No. 4, Phase "B", dated March 12, 1957. The Commonwealth's acceptance of and liability arising out of any bid shall be subject to contribution by the United States Government under the provisions of said Contribution Contract.

5. A set of the construction drawings and cross sections are available for inspection in the office of the Deputy Secretary of Mines and Mineral Industries, Anthracite Institute Building, 237 Old River Road, Wilkes-Barre, Pennsylvania.

6. Sets of drawings and cross sections required for this project may be secured from the Deputy Secretary, Department of Mines and Mineral Industries, Anthracite Institute Building, 237 Old River Road, Wilkes-Barre, Pennsylvania, for $15.00. The check for this amount should be made payable to the Pennsylvania Coal Company and included with the request to the Deputy Secretary. This check is not returnable and will be deposited by the Pennsylvania Coal Company.

7. Regardless of any agreement between the Commonwealth of Pennsylvania and the United States of America respecting contributions by the United States of America to the cost of this contract under the provisions of Public Law 162, 84th Congress, 69 Stat. 352, the United States of America shall not be considered to be a party to this contract or in any manner liable thereunder.

8. Each proposal shall be accompanied by a proposal guaranty, payable to the Department of Mines and Mineral Industries, to insure the execution of the Contract by the Bidder. Such proposal guaranty shall be the depositors check certified by the bank of deposit. No other form of proposal guaranty will be acceptable. The amount of proposal guaranty will be ten per cent (10%) of the total amount of the bid proposal. Bid proposal, with a copy of specifications attached, and accompanying certified check must be delivered to the Department of Mines and Mineral Industries office at Harrisburg, Pennsylvania, in a sealed envelope clearly marked in the lower left hand corner, "Bid for Flood Control Project No. 4, Phase B, to be opened on the 18th of September, 1958, at 11:00 A.M., Eastern Daylight Saving Time".

9. Said delivery must be not later than time scheduled for opening of bids regardless of method of delivery.

10. The form of bid proposal which follows shall be used. Failure to comply with all details of the form of proposal may result in disqualification of the respective bid.

11. The form of contract which follows is for reference of contractors while bidding, and all conditions of this contract form, and of the drawings and specifications will apply to the work.

OFFICIAL PROPOSALS

Bids: September 12, 1958

Commonwealth of Puerto Rico Department of Public Works Bureau of Highways

PROJECT DU-1-1 (14) "MARTIN PENA" BRIDGE
MUNICIPALITY OF SAN JUAN, PUERTO RICO
ADVERTISEMENT
August 15, 1958

The Board of Awards of the Department of Public Works of Puerto Rico, 1507 Ponce de León Avenue, Santurce, Puerto Rico, will receive sealed proposals for the construction of 0.3631 Km. of Project DU-1-1 (14) "MARTIN PENA" BRIDGE, Municipality of San Juan Puerto Rico.

Bidders shall submit their proposals at the Office of the Board of Awards, 1507 Ponce de Leon Avenue, Santurce, Puerto Rico, until 200 P.M. (Puerto Rico time) on September 12, 1958 at which time and place said proposals will be publicly opened and read aloud.

Principal items are 10,345 CuM Selected borrow material 978 CuM Class "A" concrete; 219,824 Lbs. Reinforcing steel; 72 Each 77 feet Precast Post-tensioned bridge girders and 8,090 LnFt Cast in place concrete piles or 8,090 LnFt 18" x 18" Reinforced concrete piles.

Plans, specications, instructions to bidders, and all necessary information may be obtained from the office of the Procurement and Contract Division, Department of Public Works, 1507 Ponce de Leon Avenue, Santurce, Puerto Rico upon a deposit of FIFTEEN ($15.00) DOLLARS in cash, money order or certified check payable to the Secretary of the Treasury until 96 hours prior to the opening of bids. The full amount of the deposit will be refunded to each depositor upon the return of the plans in good conditions within (20) days after the opening of bids.

Each proposal must be accompanied by a provisional bond in the amount of TWENTY THREE THOUSAND ($23,000.00) DOLLARS in any of the terms indicated in the General Conditions.

The Board of Awards reserves the right to accept any bid or to reject any or all bids and to award contract under the conditions found most favorable to the Commonwealth of Puerto Rico.

Francisco Lizardi—Actg
Secretary of Public Works

Bids: September 18, 1958.

NOTICE TO CONTRACTORS

Eight Mile Road Storm Drain Oakland County, Michigan

EIGHT MILE ROAD STORM DRAIN
OAKLAND COUNTY, MICHIGAN

Sealed proposals for the construction of the eight mile road storm drain, located in the City of Southfield and the City of Oak Park, Oakland County, Michigan, will be received at the office of Daniel W. Barry, Oakland County Drain Commissioner, 550 South Telegraph Road, Pontiac, Michigan, until 2:00 P.M., September 18, 1958, at which time and place they will be immediately opened and publicly read.

The quantities involved in this work consist principally of the following:

111 Lineal feet 12'—0" open cut storm drain
13,103 Lineal feet 12'—0" tunnel storm drain
2,648 Lineal feet 10'—0" tunnel storm drain
1,740 Lineal feet 9'—0" tunnel storm drain
990 Lineal feet 6'—6" tunnel storm drain
136 Lineal feet 3'—6" tunnel storm drain
304 Lineal feet 3'—6" open cut storm drain
13 each manholes
2 each junction chambers
6 each drop inlets

Plan and specifications may be obtained at the office of Daniel W. Barry, Oakland County Drain Commissioner, 550 South Telegraph Road, Pontiac, Michigan, upon a deposit of fifteen dollars ($15.00) per set. This deposit will be refunded upon the return of the set within ten days (10) of the date of the bid opening.

Each bid shall be accompanied by a certified or cashiers check or bid bond, payable to Daniel W. Barry, Drain Commission, Oakland County, Michigan, for the sum of five per cent (5%) of the bid.

The Drain Commissioner reserves the right to reject any or all bids and to waive any defects in bids provided they are to the benefit of the Drainage District.

Daniel W. Barry,
Oakland County Drain Commissioner.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5097) will be received at Lewiston, California, until 2 p.m. Pacific Standard Time, September 25, 1958, for furnishing labor and materials for earthwork, structures, and surfacing, relocation of Trinity County road, Rush Creek to Stoney Creek, Central Valley Project, California. Location near Lewiston, California in Trinity County. Principal items are 1,000,000 cu. yds. excavation for roadway; 220,000 pounds furnishing and erecting steel for Stuart Fork Bridge; and other work. Completion time 450 days. For particulars, address Bureau of Reclamation, P. O. Box 247, Lewiston, California; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Contractors Watch This Section—

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

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NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• *POSITIONS VACANT*

Highway Engineers—Highway Engineers with a minimum of 3 years experience. Excellent opportunity with established consulting engineering firm in Middle West. P-7909, Engineering News-Record.

General Superintendent—General Contractor with substantial volume throughout Michigan has opening for experienced young man to take charge of all field operations. State experience and references. P-8555, Engineering News-Record.

Wanted: Construction Superintendents and Erectors for Boilers, Turbine Generators, Condensers and Auxiliary Power Plant Equipment. Applicants must have experience record with an erection contractor in responsible supervisory capacity. P-8631, Engineering News-Record.

Senior Engineer (2) for general municipal work. Starting salary $6750 with 5 yearly increments to $8250. Must have degree in Civil Engineering. Send resume of experience to City Manager, City Hall, Watertown, New York.

Opening for Civil Engineer with Soil Mechanics background. Occasional travel involved. Good opportunity with consulting firm specializing in soil and foundation engineering. Reply giving background and experience. P-8627, Engineering News-Record.

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Experienced estimator with background in concrete structures, grouting, foundations and concrete design. Outstanding opportunity with nationwide contractor for aggressive, alert engineer. P-8623, Engineering News-Record.

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Engineer-Management. Associate with legal and/or accounting training—development and construction of oil company terminal projects—New York and East Coast areas. P-8716, Engineering News-Record.

Engineer with proven ability to promote pre-cast and pre-stress concrete also light weight concrete design. Location—New York state —Salary; open. P-8733, Engineering News-Record.

Estimator—Experienced for General Contractor engaged in construction of industrial and commercial buildings. Well established firm in Southern Connecticut offering permanent position with good future for properly qualified man. Reply giving complete resume of education, experience, etc. P-8747, Engineering News-Record.

(Continued on page 92)

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P-8728, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

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P-8715, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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Engineering Department of large grain company requires graduate engineer for permanent position with some experience in construction and design of grain elevators and knowledge of grain handling equipment. Location is New York City. Submit detailed experience record and list of references to:

P-8729, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

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P-8604, Engineering News-Record
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• POSITIONS WANTED
(Continued from page 90)

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Project or Office Manager; Engineering-Construction Industrial Plants, Housing, Airfields, Naval Bases, Resident Engineer Contract Manager, experience, foreign jobs considered. PW-8662, Engineering News-Record, 1125 W. 6th St., L. A. 17, Calif.

General Superintendent, 46. Broad experience in building construction, presently employed—interested in change. Thoroughly qualified and responsible at management level. PW-8663, Engineering News-Record.

Soils and Foundations Engineer P.E., B.C.E., M.S. (Soils) 28, single, 8 years of soils, construction and structural design experience. Presently responsible for soils and foundation design in large engineering organization. Will relocate. PW-8671, Engineering News-Record.

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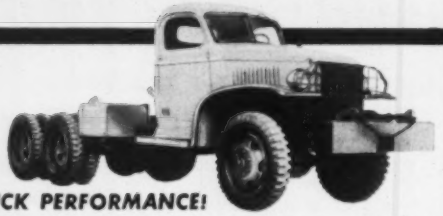

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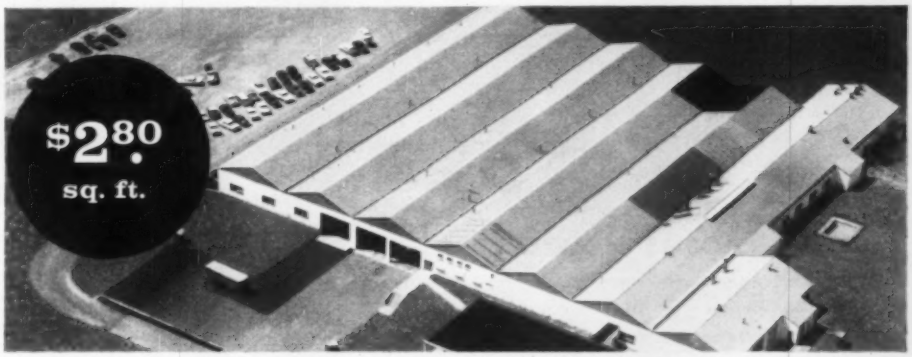

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Editorials

Better Labor Bill Needed

WHETHER THE KENNEDY-IVES LABOR BILL, which Congress voted down last week, would have led to effective labor reform will now never be known. Unfortunately for what might have been a good piece of legislation, the bill contained too much that did not deal primarily with Labor-Management Reporting and Disclosure, the bill's title. Provisions that would have meant basic changes in the Taft-Hartley Labor Act spelled defeat for the desirable features that might have checked corruption in labor-management relations. There are few who could honestly criticize the intent of the reform measures of the legislation.

An American public fully fed up with the disgusting revelations of the McClellan Committee deserved to see the Kennedy-Ives Bill shaped in the House to something passable, enforceable and effective. But the House never even had hearings, and the measure was killed under "sudden death," no-amendments, rules in the final days of debate.

Election year politics shaped the Kennedy-Ives bill and election year politics killed it. The need for labor reform, therefore, remains as great as ever. Witness such abuses as racketeer control of unions; non-accountability for union funds; and blackmail picketing.

A top item on the agenda of the next Congress should therefore be a labor reform bill designed to protect the public rather than to serve selfish political ends. Once the present corruption and intimidation are removed from the union movement, reason, fairness and common sense will at least have a chance to rule union-employer relationships.

Robert Moses Power Dam

PRECEDENT WAS SET back in 1951 by the Hydro-Electric Power Commission of Ontario when it named nine of its principal power generating stations after men who had a part in their development. Eight of the men so honored were living HEPCO leaders at the time (ENR April 26, 1951, p. 144). Consistent with precedent, the Canadians in 1954 named their half of the St. Lawrence Power Dam Robert H. Saunders-St. Lawrence Generating Station, for the Ontario Hydro Commission chairman who played such a vital part in the international project until his untimely death in a 1955 plane crash.

Perhaps Canada's lead in this manner of saluting developers of great projects prompted New York's Gov. Averell Harriman—at St. Lawrence reservoir-filling festivities earlier this summer—to suggest the U.S. half of the border-spanning structure be named for Robert Moses, chairman of the Power Authority of the State of New York. PASNY commissioners, outvoting Mr. Moses, acted on the suggestion at their meeting this month. It is now Robert Moses Power Dam.

The fact that we in the U.S. are somewhat reluctant to name great public works for the living is evident in the remarkable fact that until now nothing in New York (city or state) has been named for Mr. Moses. And Mr. Moses is no mere man; he is a public works phenomenon.

As City Construction Coordinator and commissioner of city parks, bridge and tunnel authorities and state parks, he has had a leading hand in the Triborough Bridge, the Queens-Midtown Tunnel, Jones Beach, Long Island Parkways, the New York Coliseum, the Brooklyn-Battery Tunnel and now Throgg's Neck Bridge and the planned great Narrows Bridge—all monumental public works in the New York metropolitan area. The St. Lawrence project and now the Niagara project of the power authority have perhaps been his greatest. It's a toss-up between the two. Both have taken him to the national and international arena in his relentless fighting to get the job done.

Robert Moses has described himself as a blocking back for the engineers who must carry the ball on his several agencies' projects. Those who have gotten in his way know just how hard his blocking can be; few of his adversaries are left standing when Robert Moses goes down the field. An apparently irresistible force, surrounded by able, loyal aides, above politics (although he once ran unsuccessfully for governor on a Republican ticket), he has served mayor after mayor and governor after governor in New York.

The St. Lawrence Power Project is a job well done. No one had a more important part in it than Robert Moses. It is meet and just that an important element in the project be christened in recognition of his effort. Robert Moses Power Dam is well named.

Regional Plan for the Arabs

PRESIDENT EISENHOWER'S SPEECH to the emergency session of the U.N. General Assembly was magnificently fashioned to appeal to the good sense of the Arab nations of the Middle East. Devoid of guile and full of understanding for the problems and aspirations of these troubled countries, the speech was also devastatingly logical in its suggestion of economic development on a regional basis.

Good sense and logic, however, will have difficult sledding against the disadvantages of a share-the-wealth plan, which is what regional development in the Middle East would be. Two countries, Iraq and Saudi Arabia, have oil; the others do not. Three countries, Egypt, Iraq and Lebanon, have water; the others are woefully short. None of the "wealthy" countries has more of these assets than it can usefully employ itself. So unless Arab unity is stronger than it seems, the chances for a comprehensive regional plan are slim.

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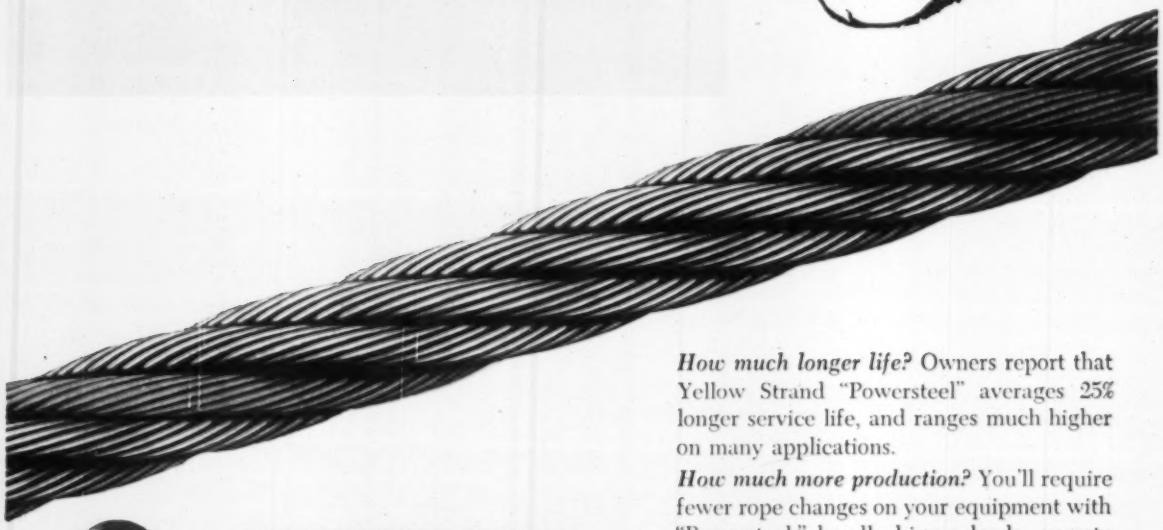

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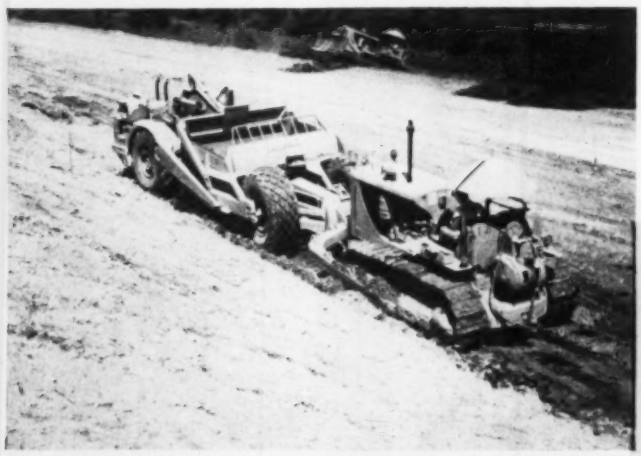

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